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ANESTHESIA IN THORACIC SURGERY

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Thoracic surgery and anesthesia are interdependent. Increasingly complicated surgical procedures demand new methods and agents for anesthesia. New anesthetic techniques permit, or even stimulate, more hazardous types of surgery. The duties of the anesthesiologist also have changed with the new trends. He is as essential a part of the team as the surgeon.

For many centuries the surgeon, haunted by the ghost of Celsus, was afraid to enter the pleura. Nearly two thousand years ago Celsus, in discussing surgical anatomy on the living criminal, stated: "It is indeed true that the abdomen, with which our argument is less concerned, can be opened while the man yet lives; but as soon as the knife reaches the thorax and cuts the transverse septum (diaphragm) the man at once gives up the ghost . . ."[1]

When Meltzer and Auer[2], in 1910, introduced their method of intratracheal insufflation for the prevention of operative pneumothorax, the sonic barrier of thoracic surgery was pierced. With subsequent methods of control of respiration or respiratory physiology, the transition from fear of the thoracic cavity to the present day exploration into the realm of intracardiac surgery has been accomplished. A great future in intracardiac surgery lies ahead. The anesthesiologist, will play no small part in this future.

What are some of the specific responsibilities delegated to the anesthesiologist? How does he cope with them? What constitutes anesthesia for thoracic surgery as now practiced?

In many instances the anesthesiologist acts in a consultant capacity in the preoperative preparation of the patient. He must be familiar not only with the patient's physical state, but also with the contemplated procedure. His preoperative findings may influence the degree of surgery, and will certainly influence the choice of agent and the management of the anesthesia. He should also have the major responsibility for managing the physiologic problems that arise during the operation. Frequently he is consulted in the management of the immediate postoperative convalescence of the patient.

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Preoperative Preparation

Evaluation

Patients are arbitrarily grouped into four classes of risk. Every factor that might affect the ultimate outcome of the anesthesia and the operation is considered in evaluating a prognosis or risk. Risk I includes patients with noncomplicating factors other than the primary disease process, such as pulmonary cysts, spontaneous pneumothorax, neurofibromas or pulmonary adenomas, and Raynaud's disease.

Classified as Risk II are patients with some moderately unfavorable factor which may be the result of the primary pathology or independent of it. In this group are patients with early tuberculosis or other lung disease; gastric ulcers or early carcinomas; other gastrointestinal lesions, either with or without associated anemia; hypertension, with early kidney or vascular complications; cardiac or vascular anomalies, such as ductus arteriosus or coarctation of the aorta. Also included are patients with moderate to severe systemic complications in no way related to the primary pathology, such as diabetes mel-

litus, nephritis, cardiovascular diseases and severe anemias or other blood dyscrasias.

The label "Risk III" is a danger signal, and means that the patient is in such poor condition that any depressing form of anesthesia or shock-producing type of operation should be avoided, if possible. Examples are patients with extensive bilateral tuberculosis, bronchiectasis or lung abscess; patients with any marked wasting or inanition associated with severe anemia; and patients with serious cardiac complications, such as recent coronary occlusion, cardiac decompensation, or other severe cardiac embarrassment, such as is noted in constrictive pericarditis. Patients with intractable asthma or other pulmonary diseases and marked diminution in vital capacity are placed in this group, as well as those with severe anemia, from or following profuse gastrointestinal hemorrhages, and patients who are emaciated from an obstructive esophageal lesion. Patients with severe to uncontrollable diabetes mellitus are also placed in group III.

Risk IV designates patients for whom a fatal outcome may be expected. In these cases, the operation must be chanced even though the patient is not likely to survive.

Knowledge of the surgical procedure

Not only is the proper evaluation of the patient's physical state important in the proper management of the anesthesia, but also a knowledge of the contemplated surgical procedure. Thoracic surgical procedures may be divided into minor and major operations. Among the minor procedures are included rib resections, stage thoracoplasty, nerve crushings, and simple thoracotomy. In the group of major procedures are such operations as exploratory thoracotomy, lobectomy, pneumonectomy, pleural decortication, transpleural drainage of lung abscesses, transthoracic removal of mediastinal tumor, transthoracic ganglionectomy, esophageal and gastric resection, vagotomy, and all types of cardiac surgery.

Review of the clinical findings

As consultant in the preoperative preparation of the patient, the anesthesiologist frequently acts as the watchdog of the surgical team. A preoperative visit the night before the operation has three purposes. First, he usually checks all recent physical and laboratory findings. If pertinent information is missing, he makes certain that it is available before the start of the operation. He also checks on the supportive therapy. Second, he helps to prepare the patient psychologically for the contemplated anesthesia and operation. Third, he orders important medications to improve the anesthesia or protect against untoward reactions that might arise during anesthesia or operation.

The presence of an intercurrent or superimposed recent, acute, upper respiratory infection may necessitate postponing the operation. Occasionally, certain urinary findings indicate the necessity of further medical therapy in diabetic or nephritic conditions. Recently, one of our patients with carcinoma of the lung began to manifest neurologic signs of paralysis, necessitating a decompression laminectomy for a metastatic lesion.

Avoidance of cardiovascular complications

The cardiovascular system is of particular interest to the surgeon, internist, and anesthesiologist, especially in contemplated thoracic surgery and anesthesia. The cardiac complications are the most spectacular and hazardous, especially those occurring during operation. Frequently, their occurrence is due to an oversight in the preoperative preparation.

In reviewing the chief cardiac complications and recommendations for supportive therapy for the prevention of these cardiac complications, Dr. Bland[3], cardiologist at the Massachusetts General Hospital, reported a total of 141 patients operated upon for carcinoma of the esophagus, 33 of whom had complications. Eleven patients had auricular fibrillation; 3 had auricular flutter; 14 had congestive heart failure; and 5 had myocardial infarction, or coronary thrombosis. In this series, 23 patients did not survive postoperatively. Nine patients died of congestive heart failure; 2 died of myocardial infarction; and 12 died of other causes.

Dr. Bland's recommendations for safeguarding against the following four serious cardiac complications are as follows: *Arrhythmia, auricular fibrillation or flutter*: Quinidine should be used routinely in all thoracic surgical procedures. In cases of infarct, it should be mandatory. In oral administration, the dose is 0.2 Gm. (3 grains) of quinidine sulfate. For intramuscular administration, the dose is 0.15 Gm. of quinidine lactate. One dose is given one hour preoperatively. Post-

operatively, quinidine is given three to four times daily for three to four days.

In *congestive heart failure,* saline is avoided. Too much saline will water-log the lung, and the clinical findings resemble those of bronchopneumonia. Five per cent dextrose in distilled water is the intravenous fluid of choice. During anesthesia the patient must be given an abundance of oxygen. Care should be taken to avoid excitement during the induction phase of anesthesia.

Because of the danger of *myocardial infarction,* the hemoglobin should be up to or near normal levels. To guard against a possible coronary attack on the operating table, these patients must have adequate oxygen. It is necessary to avoid a sudden or severe drop in blood pressure. Finally, any excitement during the induction phase of anesthesia should be avoided.

Mitral Stenosis: Patients with this complication are prone to have pulmonary edema because of the back pressure on the pulmonary circulation. Pulmonary edema is seen frequently during menses in young women who may not even know that they have cardiac disease. In these patients with mitral stenosis, surgery should be avoided around the menstrual period. Therapy should include a low sodium diet pre- and post-operatively, diuretics, digitalis, and quinidine, given as a prophylaxis against fibrillation. It is important to avoid an excess of intravenous fluids—even blood—in these patients during an operation. Last but not least, psychic trauma should be avoided; it is wise to use a basal anesthesia in the patient's room before moving him to the operating theater.

These are but a few of the preparations that are carried out, either as routine precautions, or as the result of the physical and laboratory findings noted in the detailed examination of the patient's record.

Psychologic Preparation

Many patients fear the anesthesia more than they do the operation. A preoperative visit by the anesthetist acquaints the patient with the doctor who is going to "keep him alive," and also with the contemplated agent and method of anesthesia. It gives him an opportunity to unburden himself of subconscious or concealed worries. After such visits, many patients are reassured by the familiar presence just before they lose consciousness in the strange surroundings of the operating room.

Preoperative medication

The third function of the anesthesiologist in the preoperative preparation of the patient is the ordering of medications. The purposes of preoperative medication are five in number: (1) to induce psychic sedation and minimize excitement and anxiety; (2) to decrease metabolism, thus lessening oxygen demand; (3) to diminish mucus and other secretions, thus facilitating both anesthesia and adequate oxygenation of the patient; (4) to provide prophylaxis against the undesirable side effects of some of the drugs used in anesthesia; (5) to raise the threshold for reflex sensory pain stimuli from the operative area. Under ideal medication the patient is calm and drowsy, but not stuporous. Respiration and blood pressure are not depressed. He is cooperative, but amnesic to pre-anesthetic surroundings.

In order to approach this ideal, all the physical and psychic factors previously investigated are considered. Such factors as age, loss of weight, the duration and degree of the primary disease process, the degree of vital capacity, or the presence of liver or kidney complications may restrict the premedicant requirement. Patients with high metabolic activity require heavier narcosis than the average for their age and weight. Aged or debilitated patients should be limited to small doses of respiratory depressant drugs, in order to avoid unduly depressing the blood pressure and thus contributing to operative shock. Children usually require relatively large doses for their age and weight. Occasionally, an opiate might precipitate gastric disturbances. Naturally, the psychic state or temperament of the patient also influences drug requirements.

The drugs usually employed fall into three general classes—the opium derivatives, the barbiturate derivatives, and the belladonna derivatives.

The opium derivatives, by allaying pain, inhibit metabolic elevation. Also, by enhancing the effect of the soporific drugs, they facilitate sleep and thus reduce emotional excitement.

The barbiturate derivatives, in the usual doses recommended as premedicants, act by allaying emotional excitement. Occasionally, they may produce delirium in the absence of pain and, when used alone, usually produce

delirium in the presence of pain. They afford pharmacologic protection against the toxic effects of regional or topical anesthetics.

The belladonna derivatives diminish secretion. They lessen the cardiac response to reflex vagal activity. As direct metabolic stimulants, they tend to antagonize the respiratory-depressive phases that may result from the opium or barbiturate premedicant. Scopolamine, as contrasted to atropine in this group, has the added effect of producing amnesia to present surroundings.

Risk I and II patients about to undergo a minor procedure under regional anesthesia receive 0.2 Gm. (3 grains) of Nembutal by mouth two hours preoperatively, and 10 to 16 mg. (1/6 to 1/4 grain) of morphine sulphate, plus .45 mg. (1/150 grain) of atropine sulphate subcutaneously, one and one-quarter hours preoperatively. Patients in these groups who are to undergo a general anesthesia receive 0.1 Gm. (½ grain) of Nembutal by mouth two hours before surgery, and 10 mg. (1/6 grain) of morphine and 0.6 mg. (1/100 grain) of atropine subcutaneously, one and one-quarter hours before surgery.

In Risk III and IV patients, these premedicant doses are highly specialized, either for major or minor surgery. The usual orders call for a small amount of opium derivative (8 mg. of morphine), moderate doses of atropine (0.45 mg.), given subcutaneously one hour preoperatively, and no barbiturate. We feel that the vago-inhibiting action of atropine is nil in doses smaller than 0.6 mg. administered subcutaneously.

We eliminate barbiturates in patients for whom we plan either a Sodium Pentothal or cyclopropane induction of anesthesia. Where Pentothal is to be the primary agent Nembutal is omitted, as there is the danger of a cumulative effect. In cyclopropane anesthesia, the combination of cyclopropane and barbiturate may result in a prolonged and frequently respiratory-depressed induction of anesthesia. To safeguard against the hazard of the second or delirium stage in anesthesia, we tend to use greater concentrations of cyclopropane, plus reinforced breathing, in order to obtain a more rapid induction or passage into the third stage of surgical anesthesia.

The Choice of Agent and Method of Anesthesia

The agents employed in thoracic anesthesia are usually classified as explosive or nonexplosive. In general, the methods are classified as inhalation, intravenous or regional. In the management of anesthesia, we frequently use a mixture of agents as well as a combination of methods. Naturally, all the agents employed in the intravenous or regional methods are in the nonexplosive class.

Inhalation

Three nonexplosive agents are included in the inhalation group: nitrous oxide, chloroform, and trichlorethylene. Chloroform and trichlorethylene can be immediately eliminated, as both are too toxic, on both the heart and liver. Nitrous oxide-oxygen used alone is definitely inadequate, unless we permit a state of hypoxia or oxygen-want. When used as a supplement in a regional or intravenous combination, much higher concentrations of oxygen are available; therefore, this combination has a place in thoracic anesthesia. The remaining agents usually employed in inhalation anesthesia are ethylene, cyclopropane, and divinyl ether or ethyl ether.

Ethylene, like nitrous oxide, is a poor-potency gas, and is explosive in its intermediate concentrations during induction and emergence.

Divinyl ether is rarely used except in a short procedures. Its advantages are rapid induction and quick and somewhat pleasant recovery, with less irritation to the respiratory tract than that caused by ethyl ether. Its immediate effectiveness is one of the chief disadvantages in a prolonged anesthesia. Also, in the presence of oxygen-want there may be danger of liver damage—possibly acute yellow atrophy.

In combination, each of the two remaining inhalants tend to lessen the disadvantages of the other.

Cyclopropane: The induction of cyclopropane is usually rapid and somewhat pleasant; it is odorless, and permits the use of high oxygen concentrations. The oxygen concentrations can be maintained even in deep surgical anesthesia, because of the potency of the gas. To the surgeon, the chief advantage is the quiet breathing associated with this type of anesthesia, facilitating intrapleural surgical procedures.

Cyclopropane has the following disadvantages: It is quite explosive in the usual anesthetic concentration; it is prone to increase the irritability of the cardiac muscles, thus,

in the presence of epinephrine, tending to precipitate cardiac irregularities and the most dangerous, ventricular fibrillation. It is thought by many to increase the degree of capillary oozing and blood loss.

Ethyl ether: The outstanding advantage of ethyl ether is that it acts upon the brain. Thus, in the presence of adequate oxygen and in the absence of complicating reflexes it of all inhalation agents has the widest margin of safety. Under the above conditions, the respiration ceases before the heart stops beating.

Cardiac cessation is usually the result of anoxia or severe untoward systemic reflexes, precipitated either by the surgery or by anoxia. Ether, through its action on the central nervous system, is the only inhalant agent that depresses an irritated carotid sinus or associated reflexes that might initiate cardiovascular complications, or even cardiac arrest. In the hands of the less experienced, the depth of anesthesia is more easily determined, owing to the specific signs discernible in the respective stages of ether anesthesia.

The disadvantages are as follows: The irritant effect upon the respiratory tract may cause reflex coughing and other laryngeal complications, such as spasm; also, it may increase secretions through the stimulation of the glands of the respiratory mucosa. The degree and duration of the postoperative nausea and vomiting usually associated with ether is dependent upon saturation of the body tissue. It reportedly has a deleterious effect on patients with diabetes mellitus, because of glycogen disturbance in the liver. We believe that many disadvantages attributed to ether are due not primarily to the agent but rather to a degree of hypoxia usually associated with the poor management of the anesthesia.

Our group administers the anesthetics to the Joslin Diabetic Clinic patients undergoing surgery. Approximately 60 per cent of these patient receive ether as a primary anesthetic agent. Certainly, the long and extensive experience of the Joslin group would influence our choice of anesthesia. We have encountered very little reflex coughing and spasm or excessive secretion in patients undergoing a cyclopropane induction, with ether employed as the primary anesthesia.

Intravenous Methods of Anesthesia

In some institutions the use of cyclopropane is prohibited for two reasons: (1) it is explosive, and (2) it is a serious cardiac irritant. Where cyclopropane is prohibited, the common practice is a combination of an intravenous and inhalation anesthesia. It may be a Sodium Pentothal–nitrous oxide-oxygen induction, with a gradual shift to an ether anesthesia. It may be the combination of Sodium Pentothal–nitrous oxide–oxygen alone. Again, it may be the combination of Pentothal, curare, or a curare-like agent, and nitrous oxide–oxygen. The last two combinations are nonexplosive.

Some authorities have the mistaken impression that the nitrous oxide–oxygen-ether combination is less explosive than a combination of cyclopropane, oxygen and ether. It has been demonstrated[4] that the former is explosive and that there is little clinical difference in the degree of explosiveness. As far as the patient is concerned, any explosion in a closed circuit will produce enough of a blast phenomenon to damage the lung so seriously that the patient will die from hemorrhage. In our opinion, the only valid criticism of cyclopropane lies in its cardiac irritant effect. The protective therapy against this effect has already been discussed under preoperative preparation.

Some anesthesiologists enumerate the following advantages in the use of Pentothal, Pentothal - curare, or Pentothal - Syncurine combinations as agents for anesthesia in thoracic surgery. (1) Such combinations are nonexplosive. (2) The diminished-to-absent voluntary respiratory excursions resulting from these agents afford ideal operating conditions within the thoracic cage. When these combinations are thus employed, the anesthesiologist maintains adequate oxygenation of the patient by a controlled passive breathing technique. It is their opinion that under adequate oxygenation, no cardiac or vascular changes develop. Onset of arrhythmia or falls in blood pressure are noted only with severe or sudden loss of blood. The important disadvantage is the danger of hypoxia, oxygen-want, or hypercapnia, (accumulation of carbon dioxide) that might result from inadequate control.

Pentothal is a depressant of the central nervous system, and its peripheral action tends to result in bronchiolar constriction as well as laryneal spasm. In rare instances, curare or d-tubocurarine may precipitate a severe bronchiolar spasm.

Syncurine (decamethonium bromide), a

synthetic muscle relaxer, does not have this histamine-like side effect. The danger of this particular drug lies in its potency. Small quantities may result in sudden, complete cessation of respirations. The only treatment for this complication is passive respiration by the anesthetist until the respirations return. Usually the cessation of voluntary respiration lasts from three to ten minutes. Rarely, it may be thirty to sixty minutes before the patient resumes breathing. In Risk II, III, or IV patients undergoing a major operation, we feel that it is not wise to increase the oxygen-want or hypoxic state of the already physiologically impaired patient. A second clinical disadvantage of an intravenous agent is the difficulty of determining the transition and depth of the anesthesia. The only two definite signs are: movement by the patient, indicating that the anesthesia is too light, and respiratory paralysis, indicating that the anesthesia is too deep.

Regional Methods of Anesthesia

In regional anesthesia, the four important agents employed are cocaine, Pontocaine, procaine, and Metycaine. The three general methods of administration are topical or surface application, local or incisional infiltration of nerve endings, and nerve block. Nerve blocking is usually designated by its anatomic location—that is, either paravertebral, epidural, or subarachnoid.

Topical application

In thoracic surgery, the agents of choice for topical anesthesia are a 10 per cent solution of cocaine or a 2 per cent solution of Pontocaine. It is our clinical impression that, in the absence of trauma, fewer complications such as convulsions result from systemic absorption when a 10 per cent solution of cocaine is employed than when a weaker solution is used. The greater vasoconstricting action of the more concentrated solution may be the influencing factor. Where the mucous membranes have been injured, convulsions may occur as the result of more rapid absorption.

We have seen convulsions, or the onset of convulsions, with a 2 per cent Pontocaine topical anesthesia. The immediate treatment for this complication is (1) intravenous Pentothal; (2) intratracheal intubation, so as to establish an open airway, and (3) the administration of oxygen by passive respiration until the drug is detoxified systemically. The usual period required for detoxification is from fifteen to forty-five minutes, with no residual ill effects on the patient, providing no hypoxia has occurred. The hazards of a cocaine or Pontocaine convulsion lie in the resulting anoxia.

Methods: There are various methods for topical application. The classic method is a gradual anesthetization in steps from without inward—that is, the anesthetization of the tongue, pharynx, pyriform sinuses, vocal cords and larynx, and finally the instillation of the solution within the trachea.

Our routine method is the reverse of this method. First, the patient's mouth is sprayed with the anesthetic while he is conscious. Next, the patient is rendered unconscious by a general anesthetic. By means of a special Jackson one hand atomizer*, and under direct laryngoscopy, the tip of the atomizer is inserted quickly between the cords, and then the whole trachea is bathed with a nebulizing spray of 10 per cent cocaine. Spraying is continued on the withdrawal of the tip through the cords and out of the mouth. A mild attack of spasm may ensue for thirty to sixty seconds. General anesthesia is resumed. Two to four minutes later the larynx is again exposed under direct vision, and an intratracheal tube is inserted without causing spasm or any untoward reflex response.

Our reverse modification has a twofold advantage. (1) The patient does not experience the psychic disturbance or shock that can result from the slower method. (2) The intubation period is greatly shortened. From the time of starting the anesthetic gas, the patient is intubated and ready for surgery within a period of five to ten minutes. This method of intubation is used with most of our patients having a general anesthesia.

A third method of topical anesthesia is transtracheal injection[5]. The solution employed for this method is approximately a 0.35 per cent solution of Pontocaine, arrived at by diluting 4 cc. of a 1 per cent solution of Pontocaine to 12 cc. with normal saline. This method is efficient and rapid. It is ideal for patients with overactive gag reflexes, marked oral sepsis, or excessive pulmonary secretion, as in severe bronchiectasis. The patient is conscious, and the topical anesthesia is complete.

With the patient in a supine position, a small subcutaneous anesthetic wheal is raised between the first and second cartilaginous rings of the trachea. Through this wheal, an

*No. J-1875 c 28 cm canula. (Pilling Phila).

18-gauge needle on a loaded syringe is thrust into the trachea, 6 cc. of the dilute solution in the syringe is injected rapidly, and the needle is then withdrawn. A large gauge needle facilitates the necessary rapid injection against pressure. The patient is placed immediately in a sitting position and told to cough up this solution. This action completely anesthetizes the larynx, vocal cords, and pharynx. Then the patient resumes the supine position, and 4 to 6 cc. of the remaining solution is injected through the same area. With the patient in a sitting position, the solution, by gravitation, now anesthetizes the remainder of the trachea, carina and bronchi. Within five minutes he is ready for bronchoscopy or endotracheal intubation. General anesthesia then can be started if desired. In patients with severe bronchiectasis, this technique permits early aspiration of all secretions, especially those that tend to be liberated during the progression of anesthesia.

Infiltration

Anesthesia by infiltration is employed for minor procedures only. The agents of choice are procaine and Metycaine, in a 0.5 to 1 per cent solution. Best results with procaine are obtained by taking a 5 cc. ampule of a 20 per cent solution of Novocain and diluting it with saline to the desired concentration. Three to four minims of 1:1000 epinephrine is added to this solution, to counteract the vaso-dilator influence of procaine. Many of the so-called Novocain reactions are the result of an excess of epinephrine in the solution. In dental surgery, excess quantities of epinephrine are employed for a hemostatic effect.

The toxic effects from systemic absorption of a local anesthetic are manifested by a drop in blood pressure, pallor and sweating, and, in the more severe cases, by nausea and vomiting, respiratory depression, or even convulsions. The toxic effects from the absorption of excess epinephrine are (1) a subjective sense of fear; (2) a rise in blood pressure and pulse rate, pallor, a fine fibrillary tremor of the skeletal muscles, and (3) in severe cases, a feeling of intense constriction around the chest. In either condition, the administration of oxygen is of considerable value.

Nerve block

In nerve block, the agents of choice are procaine and Metycaine. The concentrations of these solutions range from 0.5 to 2 per cent. Many modifications of nerve block techniques have been recommended for thoracic surgery. We consider paravertebral nerve block as primarily an anesthesia for minor procedures. The majority of thoracoplasties for pulmonary tuberculosis are performed under paravertebral nerve blocks and heavy medication. Other methods for nerve block include the various techniques of subarachnoid or spinal anesthesia.

Intratracheal Intubation

Purposes

As previously stated, all major thoracic operations done are under general anesthesia. Intratracheal intubation is mandatory in these major procedures and advisable in some minor procedures, especially in the poor risk patients.

Intubation has two important purposes. It insures and maintains an open air-passage into the lung, by means of which the various methods of controlled or balanced anesthesia are facilitated. By balanced anesthesia we mean supported, augmented, or positive pressure breathing, synchronized to the patient's respiratory cycle. This synchronization can be accomplished either by simple manual pressure or by complicated machines* for passive breathing. We are reluctant to depend upon a mechanical breathing machine. Conditions vary rapidly, and the constant attention of the competent anesthetist is far superior in coping with these ever-changing conditions than any machine.

Intubation also provides a free passage from which all accumulating respiratory tract secretions may be readily aspirated, thus facilitating both the oxygenation and anesthetization of the patient. The drier the patient and the clearer the airway, the better the exchange of gases across the aveolar membrane.

Technique

The techniques and the apparatus used in intratracheal intubation vary with the contemplated procedure and the preference of the anesthetist. We prefer the establishment of a closed, air-tight circuit between the lungs and our anesthesia machine. In adults, we routinely use the circuit method of the carbon dioxide absorption gas machine. In children below the age of 10, Waters' to-and-fro carbon dioxide absorption rebreathing equipment is used. We feel that the increased

*Mautz or Crafoord.

breathing effort necessitated by the circuit resistance is hazardous in children. In infants and very young children, the to-and-fro method is not advisable because of increased resistance. A modification of the Ayre T-tube technique is employed with infants. With this technique, the patient breathes into and out of a continuous one-way stream of an anesthetic mixture, usually ether in an abundant oxygen atmosphere.

As previously stated, adequate ventilation and oxygenation of the patient is the keystone of good thoracic anesthesia. One of the important factors in this oxygenation of the patient is the efficiency of the intratracheal tube. The caliber and patency of such tubes markedly influence their efficiency. The internal diameter of the intratracheal tube is very important. The average rubber transoral tube is thick-walled, to prevent compression or kinking.

Our choice of intratracheal tube is the flexible metal Woodbridge tube, a modification of the original Flagg tube. It is constructed of a fine gauge, closely coiled piano wire, with a small solid tip and a machined butt end; it cannot constrict or kink. These tubes are made air-tight by a replaceable rubber covering of Penrose tubing. This flexible Woodbridge modification has two important advantages over the more rigid transoral rubber type. (1) The larger inside diameter insures an excellent air passage, as well as easy access for adequate aspiration of secretions in any thoracic procedure. In patients with excessive pulmonary secretions, this factor may be more important to the safety of the patient than is the anesthesia. (2) The flexibility minimizes the dangers of mucosal damage from pressure points within the trachea. At certain points within the respiratory tract, the more rigid Magill or Portex types tend to ride with respiratory excursions, the butt end of all tubes being stationary at the mouth.

After the intubation, the desired air-tight circuit is obtained either by a snug fitting face mask, or by the use of an intratracheal Waters-Guedel inflatable balloon cuff attached to the intratracheal tube. We routinely employ the inflatable balloon cuff to insure a closed circuit effect. The major advantage in the balloon method is that any positive pressure applied within the system is exerted within the respiratory tract, rather than being dissipated or equally exerted in the esophagus and stomach. We have seen distension of the stomach resulting from applied pressure where a face mask had been employed. Occasionally, the clinical picture of shock results from overdistension of the stomach.

In esophageal surgery the balloon cuff method is mandatory. (1) It maintains a closed air-tight circuit. (2) It tends to prevent surgical complications that arise from gas and secretions being forced under pressure into or through the anastomotic site of operation. (3) Some type of Wangensteen suction can be maintained continuously, without loss of the air-tight respiratory circuit. (4) An air-tight balloon prevents the spilling over of excess pharyngeal or gastric secretions into the lungs.

The two reported hazards from balloon cuff insufflation are rupture of the balloon, with the possible entrance of a foreign body, and ischemic ulceration of the tracheal mucosa from overinflation and resultant pressure. In our opinion, neither danger can be realized if the inflation is carried out in the proper manner. While the balloon is being gradually inflated by means of a syringe in one hand, pressure on the breathing bag is exerted with the other hand until the circuit is air-tight. The balloon is gradually deflated until, upon pressure on the bag, there is a slow leak in the system. Then 1 cc. more of air is injected and the pilot tube to the balloon is clamped tight. In very long operations, the cuff is momentarily deflated at regular intervals. After re-inflation of the cuff, the intratracheal tube is again aspirated in order to remove any secretions that may have entered the lung area during the period of deflation.

Position of the Patient

A third factor in the maintenance of optimal anesthesia and adequate oxygenation is the position of the patient during the operation. The three standard positions are supine, lateral and prone. Physiologically, the supine position is best for the patient and most satisfactory for the anesthetist. In this position, there is no splinting of intercostal or diaphragmatic respiratory exchange. Most cardiac operations are performed in this position.

The classic position for most thoracic operations is the lateral position. Physiologically, this position contributes to respiratory embarrassment. Naturally, there is loss of intrapleural dynamics when the upper thorax is entered. When the patient is in this position,

the dependent and functioning thoracic viscera are splinted by the weight of the body and the operative manipulations of the surgeon or assistants. The physiologic functions of the dependent side may be further impaired by the use of exaggerated lift or table break to improve operating conditions. In patients with relatively normal vital capacity, usually tumor patients, this splinting may not be a serious factor. In very poor risk patients with abscesses, bronchiectasis or tuberculosis, the position may be the cause of severe hypoxia resulting from the flooding of the dependent lung and the surgical collapse of the manipulated lung. The danger of contralateral spread of infection is a very serious hazard in contemplated surgical removal of the lung for tuberculosis.

The prone position, physiologically, is the best position when a special table or equipment is used. With the Overholt table[6] or the Naclario modification, there is very little impairment of intercostal activity, and no impairment of the diaphragmatic excursions. The patient can be so placed that the diseased lung is lower than the healthy side, and the head is lower than the thorax. Thus, with drainage by gravitation, plus aspiration of the excess secretions, we can minimize the dangers of a contralateral spread of infection. In very poor risk patients, this position results in the minimal disturbance of respiratory exchange.

The major disadvantage of the prone position is that the relaxed anesthetized patient becomes "swayback." In the patient of advanced years this may cause vertebral subluxation or chronic back pain. From the viewpoint of the anesthesiologist, the major advantage of improved physiology far outweighs the minor technical difficulties of ready access for frequent aspiration of the patient. For the surgeon, operative conditions are ideal. The thoracic viscera fall away from their posterior mediastinal attachments, and thus are more readily visualized. Also, the position is less wearing to the surgeon as he remains in a sitting position through most of the operation. To the second assistant, across the table, it is a position of torture. He can hardly straighten his back at the end of the operation.

Operative Complications

A discussion of operative complications and their management that may arise in thoracic surgery and anesthesia is a paper in itself. A few complications such as arrythmia, convulsions, excess secretions, vasoreflex and hypoxic state have already been discussed.

Blood loss is a common complication, and can be treated only by blood replacement and not by the use of pressor stimulants. Transfusions should be begun with the start of operation. We feel that the supportive positive or even passive positive methods of controlled breathing should be resorted to by the anesthetist in order to minimize or abolish the dangers of hypoxia. In all transthoracic operations — especially esophageal procedures, where both pleura are entered—passive or controlled respiration is mandatory.

Another disturbing complication is a severe fall in the blood pressure as the result of traction reflexes noted in high esophageal surgery, where considerable manipulation and traction is exerted around the arch of the aorta. On encountering or anticipating such reflexes, we employ a continuous slow infusion of a pressor drug to minimize the reflex response. Our practice is to add and mix thoroughly 0.5 cc. of Neo-synephrine, a 1 per cent solution to each 500 cc. of blood used in transfusing the patient during this period of traction.

Cardiac arrest briefly requires three important integrated procedures. (1) active cardiac massage; (2) administration of an excess of oxygen by rhythmic, passive respiration; (3) cardiac muscle stimulation. This stimulation may be achieved, either by Beck's electric shock method[7], or by the introduction of pressor drugs into the heart muscle to initiate activity. Occasionally, the simple needle puncture stimulation is adequate to restore cardiac activity.

Nicholson recommends the Procaine-epinephrine combination—that is 9.5 cc. of a 1 per cent solution of procaine, plus 0.5 cc. of 1:1000 epinephrine[8]. Procaine reduces the state of cardiac muscle irritability; epinephrine or pressor drug is a cardiac stimulant. Lately, for our pressor drug we employ Neo-synephrine in a 1 per cent solution. Approximately 1 to 2 minims are diluted to 5 cc. with ventricular blood, and re-injected into the chamber of the heart. We feel that better cardiac action is obtained with Neo-synephrine than with epinephrine. Epinephrine may result in fibrillation. Neo-synephrine results in a slow, forceful heart beat thus facilitating venous return and refilling of the right auricle and ventricle.

Postoperative Responsibilities

The immediate postoperative responsibility of the anesthesiologist is shared with the surgeon. Experience has taught us that the critical period for complications is usually not during the main period of surgery but in the period of closing the chest wall and moving the patient from table to bed. There are two possible reasons for the occurrence of complications at this point. The first is that at this time, when the tension and attention are less marked, the surgical team tends to relax. Therefore, the anesthetist should be especially attentive. The second reason is that the physiologic state of the patient is continuing downhill although the operation is about over. There may be an acceleration in this lowering of the patient's physical reserves.

A serious complication that may arise during the closure of the chest wall is sudden, severe circulatory collapse, as evidenced by a marked fall in blood pressure and pulse changes. This complication results from marked positive intrapleural pressure over a prolonged period, interfering with right-sided venous return of blood to the heart. This pressure may be caused by the anesthetist's overeagerness to re-expand the lung. Again, this causative factor may be a ball-valve sucking action during the closure of a chest wall following pneumonectomy, with a resultant shift in pressure within the thorax. Release of pressure will immediately improve the circulation.

At the end of the operation, changes in the patient's position should be kept to a minimum. Move the patient directly from the operating table to his bed. Sudden respiratory cessation, even cardiac arrest, may result from too abrupt a change, especially the quick moving of the patient from a prone to a supine position. The intratracheal tube should not be removed until the patient is in bed with an adequate respiratory exchange. Occasionally, emergency passive respiration may be necessary. Tracheal aspiration should be employed while the intratracheal tube is being removed.

Bronchoscopy is not advisable until the patient's condition is improved, usually twenty-four hours after the operation. Oxygen should be started as soon as the patient is in the recovery room or back in his room. We prefer nasal oxygen because of the technical difficulties in maintaining the necessary nursing care and keeping an efficient oxygen concentration within a tent. Immediate chest suction should be started, usually with a suction pressure of from 6 to 8 cc. of water. This suction not only re-expands the partly collapsed lung but also improves the drainage of accumulated sero-sanguinous fluids within the pleural cavity. Our patients are turned at one to two hour intervals from their back to the operated side, and back again. As previously mentioned, our intravenous fluids are either blood or 5 per cent dextrose in water.

Care is taken not to depress the patient unduly with postoperative medication. The prolonged withholding of opiates can also be deleterious. The early use of opiates during recovery from anesthesia lessens sensory pain stimuli. These pain stimuli may result in falls in blood pressure, or at least in a very restless and agitated patient. Particularly, we caution against the use of opiates for restlessness due to hypoxia. The hypoxic patient is best treated by lung re-expansion and adequate oxygen. When so treated, the restlessness will subside.

These are but a few of the immediate postoperative responsibilities of the anesthesiologist. In view of the fact that the anesthesiologist is routinely present in the hospital, he is in a better position to check and cope with the fluctuating physiologic postoperative status of the patient than is a visiting surgeon.

Summary

Anesthesia in thoracic surgery as practiced today is the intricate working of a team, composed of the anesthesiologist, the internist, and the surgeon. The preparation of the patient both physiologically and psychologically is the responsibility of all. The anesthesiologist now practices more than the mere administration of an anesthetic agent. He has the major responsibility for the management of the physiologic problems that arise during operation and immediately afterward. Specific problems and complications have been mentioned. The supportive or protective therapy has been discussed. Two important criteria for the safety of the patient and the success of the operation are adequate oxygenation and optimal anesthesia. The fulfilling of these criteria has been presented in detail.

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THE ROLE OF THE PROFESSIONAL ANESTHETIST IN A CASE OF CARDIAC TAMPONADE

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Though there have been physician-anesthetists since the time of John Snow, who, in 1847, was the first doctor of medicine to devote his entire attention to the administration, investigation, and teaching of the art and science of anesthesia, the modern development of anesthesiology as a medical specialty can be dated from 1937. In that year, the American Board of Anesthesiology, with the approval of the Advisory Board of Medical Specialties of the American Medical Association, was founded, first as a subsidiary of the American Board of Surgery. Later, in 1941, it became an independent board.

The classic need for specialized anesthesia is in chest surgery. While certain emergency operations in the chest are possible without intrapulmonary positive pressure, all elective and most emergency chest surgery is made a great deal simpler and less hazardous by the competent administration of an anesthetic of choice through an endotracheal tube. The prevention of mediastinal shift, the provision of adequate oxygen exchange, and the postoperative re-expansion of a collapsed lung are in every sense essential to modern thoracic surgery. The importance of close teamwork between the professional anesthetist and the surgeon is illustrated by the following case.

Case Report

A 26 year old Negro man was admitted to St. Agnes Hospital twenty minutes after having been stabbed with a knife in the left portion of the chest. On admission he was conscious and restless, dyspneic, and grunting. His neck veins were full, and his blood pressure was found to be 60 systolic, and 0 diastolic, with a low volume, rapid pulse. The wound was in the fifth interspace, just inside the nipple line, and was bleeding slightly. On percussion the border of the heart was found outside the nipple line, and the heart sounds were muffled.

The house officer was momentarily unable to get in touch with the surgeon on call. He called the community's one professional anesthetist, who promptly obtained his kit and transported it *and* the surgeon to the hospital. Blood had been obtained from the local bank and was on hand in the operating room.

The patient was immediately anesthetized with Sodium Pentothal and d-tubocurarine intravenously, and an intratracheal tube was inserted at the very moment the incision was made. The chest was opened through a classic intercostochondral incision, with division of the fourth, fifth and sixth cartilages, and ligation of the left internal mammary vessels. The bulging pericardium was opened at the stab wound, upward and downward, the feebly beating heart was delivered, and the spurting opening in the apex was closed with interrupted chromic sutures.

Almost immediately forceful, bounding cardiac activity began, but this activity soon stopped except for a hypodynamic, disordered impulse. A combination of cardiac massage by the surgeon and, on the advice of the anesthetist, the injection of 10 cc. of 1:10,000 epinephrine into the right atrium brought about forceful and effective regular cardiac impulses. The pericardium was not resutured, since it was clearly constrictive. Had this not been the case, the anterior pericardium would have been closed and a drainage slit made posteriorly. The chest was securely closed, and an intercostal catheter left in the lower part of the chest in the posterior axillary line, and attached to a water trap. The patient was given a transfusion, his intercostal nerves were blocked, and antibiotics were prescribed. Electrocardiograms taken on the second, eighth, and twelfth days showed no changes beyond those attributable to pericardial inflammation.

The patient's temperature was sharply elevated on the first postoperative day, but on the third day dropped to normal and remained. He was allowed out of bed on the twelfth day, discharged on the sixteenth day, and has been symptom-free since discharge.

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Comment

I believe we have fairly conclusive evidence in this case that for at least five minutes the heart was unable to propel the blood. The fact that this patient reacted promptly from the anesthesia would seem to indicate that cardiac massage during this period was effective. Otherwise one would expect, at best, a slow recovery from prolonged cerebral anemia. Cerebral anemia in this case was only momentary, and I was never able to detect any conclusive sign of cerebral damage. I believe it is fair to attribute the fever to other factors, perhaps absorption of blood.

Conclusion

Emergency surgery of this type plays a small part in the day-by-day life of both surgeon and anesthetist. Nevertheless, in the anesthetist's absence, this patient, in all probability would have died. I believe that the gratitude this one patient owes to the presence of an anesthetist in our town is a token of what the whole community should feel.

CONGENITAL TRACHEO-ESOPHAGEAL FISTULA

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and

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Congenital tracheo-esophageal fistula is a common anomaly which is incompatible with life unless it is promptly recognized and treated. According to Sir G. Gray Turner, this condition is as common as cleft lip[1].

In rare instances, atresia of the esophagus may be present without an associated tracheo-esophageal fistula. Vogt's classification of congenital atresia of the esophagus[2], which is the one most widely accepted, is as follows:

I. Esophagus absent

II. Atresia of a portion of the esophagus

III. Atresia of a portion of the esophagus with an associated tracheo-esophageal fistula.

Fig. 1. Vogt's classification of congenital esophageal astresia.

(a) Fistula between the upper esophageal segment and the trachea.

(b) Fistula between the lower esophageal segment and the trachea.

(c) Fistula between both esophageal segments and the trachea.

The majority of the cases fall in group III (b).

Embryology

The separation of the respiratory tract from the foregut begins at about the fifteenth day of fetal life, when the embryo is 3.2 mm. in length. At this time a longitudinal groove appears on the ventral surface of the foregut. A constriction, starting caudally and progressing cranially, progressively separates this ventral groove or respiratory tract from the foregut, which becomes the esophagus. It is a defect in this mechanism of separation which leads to a tracheo-esophageal fistula.

Immediately after the separation of the trachea and esophagus, epithelial proliferation converts the lumen of the esophagus into a solid epithelial core, which becomes vacuolated; with the coalescence of the vacuoles, a new lumen is formed. It is a defect in this mechanism of vacuolation which leads to esophageal atresia.

Tracheo-esophageal fistula is often associated with other anomalies. For this reason tracheo-esophageal fistula should be looked for when other anomalies are present in a newborn infant. Conversely, the presence of tracheo-esophageal fistula should arouse the suspicion that other anomalies may be present. Of the 10 cases to be reported in this paper, 2 were associated with imperforate anus and 2 with cardiac anomalies. In one patient with a tracheo-esophageal fistula and the tetralogy of Fallot the extrahepatic bile passages were absent.

Diagnosis

The clinical picture of tracheo-esophageal atresia is typical and easily recognized. It is

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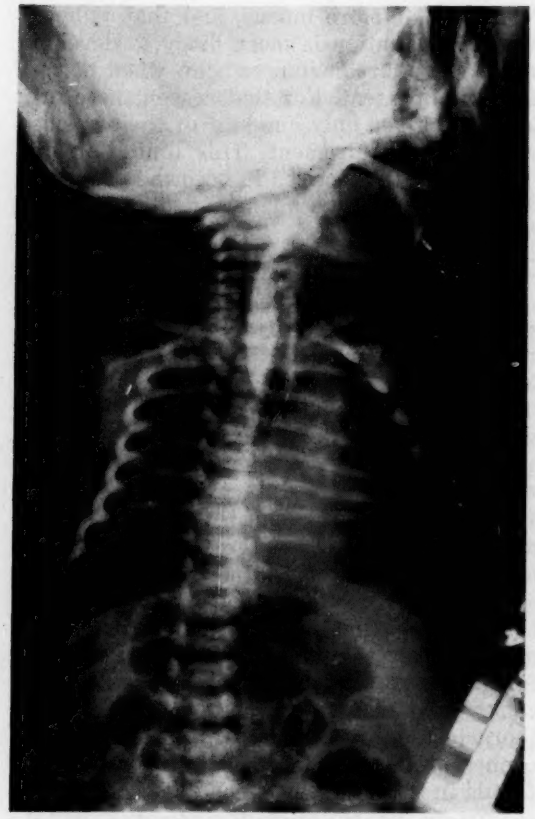

Fig. 2. Roentgenogram showing the common type III (b) anomaly. Note iodized oil in proximal blind esophageal segment and gas in the intestinal tract.

characterized by excessive mucus in the mouth, and by regurgitation and strangling when the first feeding is attempted. Inability to pass a small, soft rubber catheter beyond the first part of the esophagus confirms the diagnosis.

If facilities for roentgen and fluoroscopic examination are available, the blind upper esophageal segment can be visualized by injecting a small amount of iodized oil through the catheter. Following the examination the lipiodol is aspirated with the catheter. Barium or bismuth mixtures should never be used for this purpose because of the ill effects when the material is aspirated into the lungs. Along with the fluoroscopic examination, roentgenograms should be made of the chest and abdomen. The presence of gas in the intestinal tract, associated with esophageal atresia, is evidence of a tracheo-esophageal fistula. If no gas is present in the intestinal tract after twenty-four hours of life, it is unlikely that a fistula is present; in such cases the distal esophageal segment is usually atretic or cordlike.

Operative Techniques

The treatment of the common type of anomaly (class III (b)) must accomplish three things. (1) It must close the tracheo-esophageal fistula in order to prevent regurgitation of the stomach contents into the air passages. (2) It must drain the proximal blind esophageal pouch to prevent aspiration of mucus into the trachea. Either of these abnormalities, if untreated, will cause pneumonia and death. (3) The third aim is to establish continuity of the upper gastrointestinal tract, so that food may be taken through the mouth.

Gastrostomy alone—formerly the common treatment for this anomaly—invariably leads to death from aspiration of stomach contents through the tracheo-esophageal fistula. Jejunostomy has the same fatal results. In 1913 Richter[3] performed an intrathoracic ligation of a tracheo-esophageal fistula and did a gastrostomy, but this patient died. In the years that followed it was felt that such a direct attack on the intrathoracic fistula could not be tolerated by infants, and many indirect methods of approach were tried. Leven[4] elevated the esophagus out of the abdominal wound as a loop to prevent reflux of the stomach contents into the trachea. Gamble[5] divided the cardia of the stomach, bringing the proximal end out on the abdomen as a mucous fistula, and the distal end out as a gastrostomy. Gage and Ochsner[6] ligated the abdominal esophagus with tape. Carter[7] pulled the esophagus down into the abdomen, ligated it as high as possible, and divided it. These indirect attacks all met with failure.

In November, 1939, Leven[8] operated on a patient with congenital tracheo-esophageal fistula, ligating the fistula in the chest, performing a gastrostomy, and creating a cervical esophagostomy. The patient was the first to survive the operation, and was 1 year old at the time of Leven's report.

When Richter[3], in 1913, described his direct approach to a tracheo-esophageal fistula, he stated that he felt an end-to-end anastomosis of the esophageal segments to be preferable to any multiple stage procedures. In 1939, Shaw[9] published the first report of a case treated by ligation of the fistula and end-to-end anastomosis. His patient died on

the twelfth postoperative day, apparently as the result of transfusion reaction. Lanman[10], in 1940, published a report on a group of cases treated by direct anastomosis in 1936-1937 at the Children' Hospital in Boston. These were probably the first cases handled in this manner, and none had a successful outcome.

The first case successfully treated by ligation of the fistula and end-to-end anastomosis is that performed in March, 1941, and reported by Haight and Towsley[11] in 1943. Since then Haight[12] has reported the results in 52 cases, in 40 of which anastomosis was done. Only 18 patients in this group survived, but all of the last 6 operated on had lived. Ladd and Swenson[1] reported operations performed on 76 patients up to July, 1946, with 14 patients living and 18 dead after primary anastomosis, and 16 living and 27 dead after multiple stage procedures. Swenson[13] was able to report an outstanding personal series covering an 18 month period. During this time he operated on 20 patients, performing a primary end-to-end anastomosis in 14, with only one failure. Smaller series have been reported by Longmire[14], Lam[15], Bigger[16], Humphreys[17], and others[18].

Treatment

Preoperative care

The preoperative care of these patients should begin when the diagnosis is made, and should be directed toward proper hydration and the prevention of aspiration pneumonia. It is essential to keep patients in the head down position and to aspirate the pharynx at frequent intervals. They should be turned from side to back to side every ten to fifteen minutes, so that no one portion of the lungs is dependent for any length of time. When the preliminary roentgen examination of the chest shows the presence of pneumonia, every effort should be made to clear up this condition before operation. The baby should spend more time with the pneumonic side up than with it down; by thus increasing the respiratory excursion and promoting drainage of the affected lung, it is possible in many instances to clear up the pneumonia. Since the operation to be described is carried out in the right side, it is particularly important to have the left side free of pneumonia.

While hydration is important, it is felt that complete or excessive hydration results in the formation of more mucus, and that pulmonary consolidation is more likely to develop under these circumstances than when dehydration is present. For that reason these infants are given only one half of their calculated fluid requirement. This limitation of fluid intake is practiced in both the pre- and the post- operative management of these cases.

Operation

If the examination shows the absence of gas in the intestinal tract at the end of twenty-four hours, one should assume that a tracheo-esophageal fistula does not exist, and that the distal esophageal segment is either short or absent. The infant may be examined by a bronchoscope in an attempt to decide whether or not a fistula exists. When the distal esophageal segment is short or absent, the ideal operation of end-to-end anastomosis is impossible, and two other operative procedures must be considered. The first is to bring the proximal segment out through the neck to drain the pharynx, and then to perform a gastrostomy through which the infant can be fed. At a later date some type of thoracic esophagus must be constructed to connect the stomach with the esophageal fistula in the neck. The second operative procedure to be considered when the distal esophageal segment is believed to be short or absent is a left thoracotomy, with mobolization of the stomach and the creation of an esophago-gastrostomy in the left side of the chest.

The roentgen finding of gas in the intestinal tract indicates the presence of the common type of anomaly (III (b)), in which a primary anastomosis of the esophagus is possible. The operation is performed through a right posterior extrapleural approach to the mediastinum, with resection of portions of the third, fourth, fifth and sixth ribs. The fistula between the trachea and the distal esophagus is ligated and divided, and an end-to-end anastomosis is made between the two ends of the esophagus. The operation takes from two to three hours, and is done under general endotracheal anesthesia. The technical details of this operation and useful modifications have been described by Haight and Towsley[11], Haight[18], Ladd[19], Ladd and Swenson[1], and Swenson[13]. The operation done at Duke Hospital is a two layer anastomosis with silk, including a mucosal suture, such as that used by Swenson.

Postoperative care

The temperature is taken rectally as soon as the baby reaches the ward, to determine whether he has lost or gained heat. Measures are taken to correct any abnormality of temperature, and the baby is placed in an oxygen box. The care of these infants requires a special nurse, for the baby must be turned from side to back to side every ten to fifteen minutes, so that no one part of the lungs remains dependent for very long. Frequent aspirations of the pharynx are necessary to prevent aspiration of mucus. A tube is not placed in the stomach through the anastomosis, since this causes excessive secretion in the pharynx, prevents secretions from being swallowed, and causes undue pressure on the suture line. Fluids, which are given by vein or hypodermoclysis, are restricted to about half the calculated requirement, the daily total being 40 cc. per kilogram of body weight.

After forty-eight hours a gastrostomy is done under local anesthesia, and feedings through this opening are begun the following day. On the eighth day lipiodol is given by mouth. If roentgen examination shows the anastomosis to be patent and intact, oral feedings are begun slowly. After oral feedings have been established, a thread is passed down the esophagus and out through the gastrostomy, and is worn as a continuous loop. The purpose of this procedure is to allow retrograde dilatations with the Tucker bougies to be carried out if necessary. When dilatations are no longer necessary, the string may be withdrawn and the gastrostomy allowed to close.

*Report of Ten Cases**

Since January, 1947, when the Division of Thoracic Surgery was organized at Duke Hospital, 10 cases of congenital tracheo-esophageal fistula have been seen; all fell in Vogt's class III (b). One family refused operation for the child. In the other 9 cases a right posterior mediastinotomy was performed, with ligation of the fistula and attempted end-to-end anastomosis. The first 3 operations were unsuccessful, but 4 of the last patients operated on have done well. Summaries of the case histories follow.

Case 1

A 3 day old infant, born April 5, 1948, had a posterior mediastinotomy with ligation and division of the fistula and an end-to-end anastomosis. She died on returning to the ward. Autopsy disclosed other anomalies—namely, the tetralogy of Fallot and absence of the extrahepatic bile passages.

Case 2

An infant born on April 15, 1948, had an imperforate anus in addition to a tracheo-esophageal fistula. Operation was refused by the parents.

Case 3

An infant born on June 27, 1948, had a posterior mediastinotomy, with ligation and division of the fistula and an end-to-end anastomosis, at the age of 4 days. When a leak developed in the suture line on the ninth postoperative day, a gastrostomy was performed. The patient died on the fifth day following gastrostomy. Autopsy showed that the tip of the gastrostomy tube had eroded through the stomach and left side of the diaphragm. The esophageal suture line had separated.

Case 4

In a 2 day old infant, born July 14, 1948, a posterior mediastinotomy, with ligation and division of the fistula and end-to-end anastomosis, was performed on the second day after birth. A gastrostomy was done at the same time. The baby died during the latter part of this long procedure.

Case 5

On October 16, 1948, a posterior mediastinotomy with ligation and division of the fistula was performed on a 4 day old infant. A telescopic anastomosis, such as that described by Haight, was carried out, and forty-eight hours later a gastrostomy was performed. The gastrostomy tube was removed on the eleventh day, since the infant was then taking all feedings by mouth. She has had no difficulty in swallowing to the present time.

Case 6

A 12 hour old infant, born May 4, 1949, had a posterior mediastinotomy, with ligation and division of the fistula and an end-to-end anastomosis. She died thirty-six hours later. Autopsy showed an interventricular septal defect and massive pulmonary hemorrhage, the cause of which was obscure. The anastomosis was intact.

Case 7

At the age of 3 days, this male infant, born May 31, 1949, had a right thoracotomy, with ligation and division of the fistula and end-to-end anastomosis. A gastrostomy was done the next day. A leak developed in the esophageal suture line, but drained uneventfully and soon healed. As healing took place a stricture developed, which necessitated a second operation and re-establishment of the anastomosis when the child was 2 months of age. The child now undergoes occasional retrograde dilatations, but takes all feedings by mouth and is developing normally. The gastrostomy was closed at the age of 18 months.

Case 8

A 4 day old infant, born August 20, 1949, had a posterior mediastinotomy, with ligation and division of the fistula and end-to-end anastomosis. The baby did well for four weeks after operation and took regular feedings by mouth. It died of pneumonia in the fifth week, and autopsy showed re-establishment of the tracheo-esophageal fistula from the site of

*Since this article was submitted for publication, 4 additional patients have been operated upon. In each case, the pleural cavity was entered by the fourth right rib bed. Three of the 4 patients survived, and are doing well. None of the survivors required a gastrostomy. One patient died from aspiration pneumonia due to a recurrence of the fistula.

the original fistula in the trachea to a point in the esophagus several millimeters below the anastomosis.

Case 9

On October 12, 1949, a posterior mediastinotomy, with ligation and division of the fistula, was performed on a 4 day old infant. The esophageal defect which had to be bridged was more than 3 cm. in length, and the anastomosis was therefore under some tension. A gastrostomy was done forty-eight hours later. The baby swallowed well for about two weeks, when a stricture rather suddenly developed at the anastomotic site and could not be dilated. When the child was 6 weeks of age, the stricture was resected, and the anastomosis re-established. The patient has required periodic retrograde dilatations, but is now taking all feedings by mouth, and is gaining weight. The gastrostomy was closed at the age of 18 months.

Case 10

An operation for imperforate anus was performed on an infant born on November 21, 1949. During his postoperative course, he had an excessive amount of mucus and did not start to feed. On the sixth day of life, he was found to have esophageal atresia with a tracheo-esophageal fistula. A posterior mediastinotomy, with ligation and division of the fistula and end-to-end anastomosis, was performed. Forty-eight hours later, a gastrostomy was done. Oral feedings were established, a string was passed down to the stomach to form a continuous loop, so that retrograde dilatations could be done when necessary. He is taking all feedings by mouth now, and is gaining weight.

Conclusion

The improvement noted recently in the results of treatment for congenital tracheo-esophageal fistula can probably be attributed to early recognition of the anomaly, improvement in infant anesthesia, and better postoperative care. The operative procedure, although calling for speed, gentleness, and fine suture technique, is not difficult. When the condition is diagnosed promptly and the baby is immediately referred for surgery, the chances of a successful outcome are better than even.

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HEMORRHAGE FROM PEPTIC ULCERATION IN MECKEL'S DIVERTICULUM

Report of Case Occurring In an Adult

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DURHAM

Although gastrointestinal hemorrhage in Meckel's diverticulum is common in infants and children, it is rare in adults. Denecke[1] first discovered ulceration in Meckel's diverticulum in 1902. Deetz[2], in 1907, described the presence of gastric mucosa in these structures. He emphasized the fact that these lesions are similar to the common duodenal and gastric ulcers. In a review of 1,605 cases, hemorrhage was found to be the most common complication, occurring 496 times, an incidence of 30.9 per cent[3].

It has been estimated that heterotopic tissue is present in 25 per cent of these anomalies. Johnston and Renner[4], in reviewing 78 cases, found heterotopic tissue in 64, of which 50 presented evidence of ulceration. Ladd and Ross[5], report gastric mucosa in 40 cases of a 73 case series. In this series, hemorrhage was the most common complication, occurring twenty-six times. Mecray, Ristine, and Gunter[6], found that ulcer in Meckel's diverticulum was the most frequent pathologic condition.

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Fig. 1. Meckel's diverticulum, showing the ulcer in the tip of the diverticulum.

Cobb[7], in reviewing 100 cases of ulcerations in Meckel's diverticulum, reported 17 cases in patients 18 years of age or older. Apparently, ulceration develops as the intestinal mucosa is eroded by the secretions of the heterotopic gastric cells. The ulcer usually is found at the base of the diverticulum. A review of the literature reveals that the anomaly of Meckel's diverticulum occurs more frequently in the male.

Symptoms

The alarming feature of this pathologic entity is usually intestinal hemorrhage—most often silent, although cases in which pain occurred either prior to or during the bleeding have been reported. When pain is present, it is usually para-umbilical, and may be accompanied by nausea and vomiting. Rectal bleeding is characterized by a stool of dark, clotted material, usually followed by bright red blood. In general, the bleeding is not as tarry as hemorrhage from the upper gastrointestinal tract occurring in cases of gastric or duodenal ulcer. Hemorrhage from a bleeding Meckel's diverticulum is often massive, the blood count dropping to 2,000,000 red blood cells, or less.

Diagnosis and Treatment

In the investigation of this type of bleeding in adults, careful history-taking and physical examination, roentgen studies of the upper gastrointestinal tract and ileum, barium enema examination of the colon, and proctosigmoidoscopy are essential. If these studies are noncontributory to the diagnosis—as is nearly always the case in bleeding ulcers of Meckel's diverticulum—exploration is indicated. Before exploration is carried out, bleeding esophageal varices, bleeding ulcerations of the stomach and duodenum, benign and malignant tumors of the small bowel, polyps and malignant growths of the large bowel must be ruled out. It should be emphasized that bleeding from a rectal or colonic polyp is frequently confused with a bleeding Meckel's diverticulum, although in the former the bleeding is not apt to be massive, and the color is uniformly bright red.

The following case report illustrates the massive tendency of the bleeding, which can

Fig. 2. Low power photomicrograph of specimen. Note the ulcer, with gastric mucosa and the ileal mucosa on the right.

occur from ulcerations in these congenital abnormalities. Treatment includes adequate blood replacement, abdominal exploration, and resection of the diverticulum. At times it may be necessary to resect a segment of the ileum with the diverticulum, to prevent encroachment upon the lumen of the ileum.

Report of a Case

A 43 year old white male was admitted to Watts Hospital with the chief complaint of intermittent painless rectal bleeding for the past two years. The patient stated that at thirty to sixty day intervals he had had episodes of rectal bleeding, lasting approximately twenty-four hours. The blood at first was dark, and contained some clots; then it became bright red. The bleeding was not accompanied by pain, nausea, or vomiting. On one occasion before admission he became weak and pale from loss of blood. He had lost about 10 pounds in the last two years. His past history was essentially negative, except for an appendectomy performed in 1935.

The physical examination revealed a well developed, rather thin asthenic male, who did not appear to be in any acute distress. The physical examination was completely negative except for a left indirect inguinal hernia. A well healed right rectus scar was noted.

On admission this patient was quite anemic, with a red blood count of 2,900,000, a hemoglobin of 7.5 Gm. (52 per cent). During the process of preparation for surgery, he received 1500 cc. of blood. Diagnostic procedures consisted of a proctosigmoidoscopic examination, barium enema, two contrast barium enemas, small bowel studies, and an upper gastrointestinal series, which were all negative.

An exploratory laparotomy was performed on March 29, 1950. Most observers thought this patient had a polyp of the colon, although Meckel's diverticulum had been mentioned. A thorough exploration of the large bowel was negative. Exploration of the small bowel disclosed a Meckel's diverticulum about 15 cm. from the cecum in the terminal ileum. An ulcer was noted at the tip, showing marked serosal inflammation. The diverticulum was resected.

The postoperative course of this patient was uneventful, and he was discharged from the hospital on April 4, 1950.

The pathologic examination revealed a definite ulcer crater at the tip of the diverticulum (figs. 1 and 2).

Summary and Conclusion

1. A case of massive hemorrhage occurring in an adult from peptic ulceration in Meckel's diverticulum is reported.

2. Exploration is indicated in this type of complication arising from this congenital anomaly, even though all diagnostic studies are negative.

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CONTINUOUS CAUDAL ANALGESIA IN VAGINAL DELIVERY

Report of 702 Cases

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This paper is a presentation and evaluation of the results obtained with cadual analgesia in a general, non-teaching hospital by the nurse-doctor team advocated by Hingson and others[1]. Although only 702 cases are reviewed, this number represents a cross-section of well over 1000 cases. Cases were omitted from the report only when the information on the charts was not complete enough for statistical study. Cesarean sections and gynecologic operations under caudal analgesia were not considered.

In 680 cases a 1.5 per cent solution of Metycaine was used, and in the remaining 22 cases a 0.15 per cent solution of Pontocaine was used. The longest duration of caudal Metycaine anesthesia recorded was 20 hours and 30 minutes. The longest duration of caudal Pontocaine anesthesia was 13 hours and 20 minutes. The average duration of analgesia was three hours and 32 minutes, and the average amount of anesthetic used was 94.4 cc. Tables 1 and 2 show the results of the analgesic agents.

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Table 1

Analgesic Effect

	No. Cases	Percent.
Good	645	91.8
Fair	44	6.2
Poor	10	1.4
None	3	0.4

Table 2

Unpleasant Side Effects

	No. Cases	Percent.
Nausea and vomiting	208	29.6
Fall in blood pressure	90	12.8
Transient numbness over the entire body and a "jumpy feeling" (symptoms of intravenous caudal anesthesia)	4	0.6

From table 1 it is seen that 98 per cent of the patients obtained what was considered adequate relief, a figure that compares favorably with the results of other analgesics. Supplementary anesthesia was used in 31 cases only (gas in 23 and saddle-block in 8).

Three hundred and one primiparas and 401 multiparas were included in the series. Table 3 shows the types of deliveries performed.

Table 3

Types of Deliveries

	No.	Percent.
Spontaneous	367	52.2
Low forceps	237	33.3
Mid forceps	64	9.1
Breech extraction	34	4.8

As familiarity with the method increased, a larger percentage of the patients were delivered spontaneously, aided by their own efforts and by fundal pressure. Because of the absence of perineal pressure, however, the urge to "bear down" is lacking, and a smaller percentage of spontaneous deliveries results. This is in line with the trend toward prophylactic forceps, which is considered good obstetric practice by present day obstetricians.

The average duration of labor in this series was 11 hours and 30 minutes for the combined first and second stages, and 7.2 minutes for the third stage. The average for primiparas was 13 hours, 42 minutes for the combined first and second stages, and for multiparas, 11 hours and 30 minutes. The averages given in DeLee's textbook[2] are 17½ and 12½ hours respectively. The impression is gathered that once labor is definitely in progress, the process is noticeably quickened by the use of conduction analgesia.

Additional data are contained in the following tables:

Table 4

Estimated Blood Loss

Amount (cc.)	No. Cases	Percent.
0-100	502	71.5
100-250	146	42.7
250-500	38	5.4
500+	16	2.2

Table 5

Complications of Labor and Delivery

	No. Cases
Transverse arrest	27
Persistent occiput-posterior	4
Premature separation of placenta	1
Placenta previa, marginal	1
Incarcerated placenta	1

Five sets of twins and 9 premature infants other than twins were delivered. The condition of the infants at birth is tabulated in table 6.

Table 6

Condition of Infants at Birth

Condition	No.	Percent.
Normal (cried spontaneously and quickly)	632	90.0
Cyanotic, but responded to clearing air passages	40	5.7
Required resuscitation	17	2.4
Showed evidence of atelectasis	4	0.6
Stillborn	9	1.2

Table 7

Causes of Fetal Death (Stillborn and Neonatal)*

Cause of Death	No. Cases	Percent.
Monstrosities	5	0.7
Intracranial hemorrhage (proved at autopsy)	4	0.6
Erythoblastosis or kernicterus	3	0.4

*None of these deaths could be attributed to the analgesic agent.

No figures concerning the number of cases in which spinal anesthesia was given inadvertently were recorded. However, this did occur several times. The fact was recognized before or after the test dose of anesthetic in every case except one, and labor was conducted under continuous spinal anesthesia; or spinal anesthesia was discontinued, and the patient was given Demerol, opiates, or barbiturates and delivered under inhalation anesthesia. The one case in which the subarachnoid administration of Metycaine was not recognized early is worthy of a more detailed report.

Case Report

The patient was a primipara whose labor was progressing very rapidly, and painfully. Thirty cubic centimeters of Metycaine were injected rapidly. The patient ceased breath-

ing almost immediately, became cyanotic, and her pulse became slow and irregular. She was given positive pressure oxygen for over an hour, and epinephrine subcutaneously. She was also given 1 cc. of epinephrine in oil intramuscularly. Fortunately, these measures were effective. Although she had analgesia of the skin to her chin and could move nothing but her eyes, the anesthesia gradually wore off and she began to breathe spontaneously. During this time her labor continued to full dilation, and she was delivered of a normal, living infant, without further anesthesia. She never lost consciousness at any time.

Advantages of the Method

During labor most patients under caudal analgesia lie comfortably, conversing with the nurse or doctor. It is true that some frequently call for the emesis basin, but labor itself causes vomiting in many cases, and the opiates and Demerol are often the offending agents. In most of these cases, while the nurse watches the patient, the doctor can work unimpeded in his office, or sleep comfortably until called to an unhurried delivery. The sense of urgency is removed. The patient is delivered, often without discomfort, and nearly always without excessive pain.

The patients do not become exhausted, since labor proceeds without the rolling, twisting, turning, and straining associated with other methods. Dehydration caused by vomiting and the inability to take fluids by mouth is easily combated with intravenous glucose. A fall in blood pressure is controlled by ephedrine and by turning the patient on her side. The infant attempts to cry even before delivery is completed in many cases.

The incidence of persistent posterior occiput and transverse arrest may be increased by the use of conduction anesthesia, but this drawback is compensated for by the ease in which manual or forceps rotation is accomplished because of the pelvic and perineal relaxation obtained. For the same reason, caudal anesthesia is the best method I have used for breech delivery. Podalic version cannot be easily performed under caudal anesthesia, because the uterus is not completely relaxed. However, this operation is fast losing its place in obstetrics, and caudal anesthesia does not preclude the use of general anesthetics.

Although caudal analgesia is not generally considered a good method in tests of labor, opinion with regard to this matter is changing. One case in the present series comes to mind in this connection. A small primipara, with a borderline pelvis, labored to full dilation without engagement of the head, although her membranes were ruptured. After several hours of full dilation, with hard labor and without engagement, it was decided to do a cesarean section. Since her labor was so painful, the patient was placed under caudal analgesia to relieve her pain while the arrangements for the section were being made. Within 15 minutes after the anesthetic took effect, the head was on the perineum and the patient was delivered by easy low forceps. Apparently the caudal anesthetic gave just enough relaxation to allow the head to enter the pelvis.

The character and duration of labor are, to a large extent, controlled by the forces of resistance as opposed by the forces of expulsion. Under conduction anesthesia the resisting forces are apparently reduced more than the forces of expulsion, and, as a result, labor progresses more rapidly. The incidence of cesarean section in my practice has been reduced almost to the vanishing point, until now it consists, in the main, of repeat sections, or those done for reasons other than cephalopelvic disproportion. Certainly some of this reduction must be due to the greater willingness of the patient to try a good test of labor, and to the lack of exhaustion attendant upon other forms of analgesia.

Conclusion

Caudal analgesia has been proved as a method safe for both mother and child, provided the contraindications are taken into account, and the proper safeguards and tests are carried out. It results, I believe, in lowered morbidity and mortality in mother and child. Instead of contracting, the field of its use is constantly expanding. It has made the practice of obstetrics comparatively easy and pleasant.

The complications that are associated with older methods of analgesia are singularly reduced with caudal analgesia because the urge to "meddlesome midwifery" is reduced. In fact, the only real danger is that some day the use of caudal anesthesia will mask the rupture, or impending rupture, of the uterus until it is too late for active interference. To

my knowledge, no method of coping with this situation has yet been devised.

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THE CONCEPT OF PSYCHOSOMATIC MEDICINE

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Since the effect of the emotions was not scientifically studied until within recent times, for centuries man was ignorant concerning many diseases to which he fell victim. He had always known that fright might bring on palpitation, profuse perspiration, and even nausea; that choking sensations might follow rage, and blushing follow embarrassment, and so on. During the past century, however, he observed that cellular disease led to structural alteration, and subsequently to physiologic (or functional) disturbance. It is now known, moreover, that some functional disturbances result in cellular diseases and structural change, and that psychologic disturbances sometimes antedate and cause functional disturbances. These, in turn, may bring about pathologic changes in the cells. Thus is it seen that the *psyche* and the *soma* of every individual are inseparable components; and that far too long have they suffered an artificial dichotomy.

It can not be denied that, at the present, many patients visiting the offices of general practitioners complain of symptoms that can not be explained by any detectable organic disease. In other patients, no definite bodily disease can be found, though many complaints are reported. In fact, virtually 70 per cent of the general practitioners' patients furnish unquestioned proof of the psychosomatic concept of medicine. Many physicians with only meager training in psychiatric techniques, however, have been reluctant to accept this concept. In this scientific era—characterized by two global wars, a deep-seated depression, the discoveries following the conquest of the atom, and many colossal movements of national and international importance—ample evidence against the fallacious belief that mind and body can be dissociated has been furnished.

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The Physiologic Basis of the Concept

Although, as has been noted, many physicians were averse to the psychosomatic concept of medicine, today this view is being subscribed to more and more on every hand. Through laboratory experiments, clinical experience, and autopsy findings, scientists and neurosurgeons, in particular, have produced conclusive evidence that the hypothalamus, a tiny area hidden away in a dark recess of the human brain, is an important regulating and coordinating center for both divisions of the autonomic nervous system and for the endocrine glands.

It is not difficult to understand how this powerful regulator of body temperature, water balance, carbohydrate and fat metabolism, gastrointestinal functioning, patterns of sleep and waking, emotional balance, and so on, can bring about changes in various conditions of the periphery of man's entire organism. To the hypothalamus come numerous nerve fibers from the frontal lobes (the source of man's intelligence and personality) and many other important centers; while from the hypothalamus fibers radiate back to the cerebral cortex (frontal lobes) the spinal cord, the medulla, the pituitary gland, and so on. When man becomes worried or harried, these disagreeable and harmful impulses are transmitted to the hypothalamus, causing a dysfunction therein that hampers regulation of the vital functions of the entire organism. As a result, peptic ulcers, renal disturbances, and numerous other ailments develop in man's periphery. It is thus readily seen how a general dysfunction of the hypothalamus is caused when man frets, worries, lives under tension or morbid fear; and how, in turn, the hypothalamus, since it involves such fundamental bodily mechanisms, profoundly alters the whole rhythm of the human organism. Such, in a nutshell, is the concept of psychosomatics.

Psychosomatic Disturbances

Although Plato, Hippocrates, and Socrates, thousands of years ago, voiced their belief in the interrelationship of mind and body, it remained for modern man to show that in at least four major types of disease, disturbances in the individual's thinking, feeling, and behavior can reach such a degree of intensity as to throw his whole body out of balance. These types include digestive ailments, such as colitis and peptic ulcers; heart and circulatory disorders (especially high

blood pressure); headaches, joint pains, and muscular pains; and asthma and other allergies.

Of particular interest are the findings of the Wittkower Report of 1949[1] which provided information regarding the powerful play of emotions in tuberculosis and set forth the view (now wholly substantiated) that an unhealthy mode of living and frequent mental upsets often precede the development of tuberculosis. Wittkower also stressed the importance of love and security as basic requirements of a wholesome development and the absence of these factors as a common feature of the pre-morbid personalities of 785 tubercular patients whom he had observed over a period of thirty months.

Psychosomatic disturbances are commonly manifested as migraine, dermatitis, diarrhea, constipation, diabetes, renal disturbances, thrombosis, angina pectoris, neurotic cough, obsessions, compulsions, and many other sexual psychotic and vasomotor disturbances. According to Weiss, anxiety states with gastrointestinal symptoms constitute the most common of all psychosomatic problems[2].

Whereas many emotions, such as mirth experienced during a meal at the table or during a picnic, and the enjoyment of music, may prove beneficial, the emotions associated with unpleasantness and conflict which have been banished from the conscious and consigned to the *unconscious*, may, if they are allowed to become chronic, prove as detrimental to the body as are toxins and bacteria. Thus, the psychic problems produce in the body, physiologic changes which sometimes seriously alter behavior.

Contrary to the assumption of physicians of the old school, science well knows today that the pains associated with psychosomatic conflicts actually exist. It is, therefore, an exceedingly risky procedure to attempt to make a diagnosis on the basis of presenting symptoms only. The examiner must consider his patient from all aspects, and the disease as an expression of his entire life pattern, including the phylum, of which he is a part. A study of the patient's complete background —including his physical status and onset of illness, heredity, personality factors and their disposition to imbalance, occupations and vocational adjustment, social, familial, and sexual adjustment, as well as his proneness to accident—should therefore be made.

The diagnosis and treatment of psychoneurotic disorders, especially during the war, enabled general practitioners, surgeons, and psychiatrists to acquire fuller recognition of the role played by the psyche in all diseases. During a four-year period one million patients in the Army alone had nervous or mental disorders[3]. Is it likely that the incidence of gastrointestinal disorders, peptic ulcers, migraine, colitis, dermatitis, heart affections, hypertension, neurosis, and numerous other complaints would have been so high if the men had stayed at home?

The Role of the Emotions

Unresolved conflicts

With the assistance of a psychiatrist, many perplexing disturbances manifesting themselves in physiologic diseases of adult life can be traced to unresolved emotional conflicts in childhood. Frequent reference is made today to the significant role played by security in the life of an infant nestling in its mother's embrace. This sense of security, if maintained throughout childhood, is conducive to a more nearly normal adulthood, and constitutes reliable insurance against abnormal developments.

Life situations met unsuccessfully can easily occasion conflicts which are expressed in fears, compulsions; or anxieties. When children, for example, worry over their failures in school and college, when adolescents grow perturbed about sexuality, when young adults suffer because of maladjustment to marital or family relationship, their conflicts may express themselves in dizzy spells, pains in the chest, insomnia, headaches and many other organic discomforts. The family doctor who is trained in the basic principles of psychologic medicine and uses the psychologic approach to his practice can be an invaluable guide.

If, on the other hand, he is not able to attach significance to tics, convulsions, night terrors, fantasies, cruelty, chronic disobedience, temper tantrums, and other undesirable emotional reactions, all of which are frequently the result of improper rearing by misguided or ignorant parents, then the emotionally disturbed individuals are likely to develop serious maladjustments during critical periods in later life.

The need for security

During these critical days when, in Shakespeare's words, "fears and scruples shake

us," let it be remembered that strong emotions can disastrously affect the nervous system, producing numerous psychosomatic illnesses. Men, therefore should strive to attain a greater degree of personal, national, and international security. The perturbed inhabitants of New Delhi, India, felt more secure when police authorities recently sealed the world's tallest minaret, Quth Minar, from which, since the twelfth century, despairing lovers, failing students and unsuccessful individuals had leapt to certain death 234 feet below.

As long as individuals and nations allow patterns of destructive fear to dominate their lives, there will be an increase of psychosomatic problems. Commonly encountered today are the crippling fear of pain, loneliness, loss of job, public censure, old age, loss of marital love, mental disease, failure, and death.

The Physician's Responsibility

When the individual, suffering because of emotional maladjustment, seeks help from his physician in dealing with coercive environment, what can the general practitioner do for him?

The family doctor, who holds a position of distinction and respect within the community, should recognize no rigid demarcation between the mental and physical aspects of his patients. Furthermore, he should do everything possible to ward off the possibility of future nervous disorders when he first suspects unhealthy mental states in his patients.

Deutsch[4] states that physicians who would like to learn how to treat psychosomatic disorders must learn first to make psychosomatic diagnoses. Continuing, he says:

> "Then they should treat the patient until the symptoms for which he came, disappear, which they do when the need for somatic expression is removed or when the bodily symptoms are reconverted into emotional symptoms. When the latter has occurred, the patient will accept treatment from a psychiatrist much more readily. For this reason, transfer to a psychiatrist is best done after the patient has had preliminary treatment by a physician. If the physician's treatment has made the bodily symptoms disappear, his role as therapist is concluded."

If an internist wants to go into psychosomatic research or teaching, he should be acquainted with the psychology of the child, adolescent and adult, as well as with involution and old age, and with the theory of adjustment. He should be informed as to the emotional problems of the sick and acquainted with the psychopathology of the neuroses and psychoses. He should know interviewing techniques and the various types of treatment from the simple handling of a situation to psychotherapy.

The time has come when the physician will have to consider the "other side of his patient," and there seems to be no reason why the general practitioner will not be able to do so.

Conclusion

Normal behavior will never occur in a mind without a body, or *vice versa*. Why then should any physicians or patients continue to consider the status of one to the exclusion of the condition of the other? The living organism, itself a whole personality, will admit of no splitting but will react favorably to treatment toward normal behavior only when mismanaged body functions are looked upon as the result of disturbed emotions.

In view of the prediction that diseases will increase within the next decade, it is hoped that the wide acceptance and application of the psychosomatic concept of medicine will steadily continue.

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IATROGENIC DISEASE

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The word "iatrogenic" is derived from the Greek words, *iatro*, meaning physician or therapy, and *genesis*, of course meaning creation. Iatrogenic disease, therefore, is disease created by the physician. To broaden the meaning somewhat, we might say disease *aggravated* by the physician.

During the first twenty-five years of this century it was sincerely felt that all subjective symptoms must be explained by the presence of an organic or structural defect. Within the past twenty-five years, with the incidence of illnesses resulting from two world

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wars, realization has come that many diseases stem from disturbed *physiology* rather than disturbed *anatomy*. Generally speaking, such functional disturbances arise from some emotional upset, such as insecurity, fear, anxiety, and unhappiness in the life situation.

During the past ten to fifteen years it has been recognized that many organic diseases have their origin in disturbed emotional states. Chief among them are peptic ulcers, essential hypertension, rheumatoid arthritis, asthma and other allergic states, and dysmenorrhea.

In the light of the high emotional content of these diseases, it is easy to see how a doctor's own emotional reactions to his patient's disease may influence the patient's reaction to his symptoms. What a doctor tells his patient also has great influence.

We doctors are guilty of many specific practices that tend to create invalidism and aggravate existing disease. On careful physical examination, *some* abnormality or other can be found in nearly everybody. Many times, because we cannot find any definite pathologic condition, we are inclined to blame the symptoms on some trivial abnormality. These trivial findings may lead us to prescribe much needless therapy.

Unnecessary Surgery

Many a thyroid gland has been removed because of a rapid pulse and an erroneous basal metabolism test. Surgery does not relieve symptoms that are due to a psychoneurosis. Further, in such cases, there is the ever-present danger of creating hypothyroidism with all its woes.

Cystic ovaries, malposition of the uterus, and slight thickening of the fallopian tubes often lead to needless surgery. Again, when a patient's dysmenorrhea is due to psychogenic causes, and when her backache is due to fatigue or flat feet, surgery will be of no benefit. Furthermore, such surgery often leads to an early menopause.

Probably the worst thing that surgeons do is to operate unnecessarily for adhesions and so-called "chronic appendicitis." I recall one young girl who had a definite situational psychoneurosis that caused many vague gastrointestinal symptoms. Her surgeon, without paying any attention to her emotional make-up, removed her "chronic appendix." As the symptoms persisted, she subsequently had two more operations for "adhesions," neither of which brought relief. Her illness persisted more than five years. She was cured only when marriage brought an end to her unhappy situation.

Errors in Medical Practice

Chronic alcoholism always presents a problem. Nearly all alcoholics demand some sort of sedation for their hang-overs. Usually, we prescribe one of the barbiturates. Many such patients, as a result of the indiscriminate use of these drugs, have become barbiturate addicts. Do you know of anything worse?

Asthma presents another problem. A large number of asthmatic patients have become narcotic addicts because doctors prescribe morphine and other narcotics too freely. Fortunately, that danger is now realized, and addiction from that cause is relatively infrequent.

Probably we do our greatest harm in dealing with *cardiovascular disease*. The layman hears of the comparatively few sudden deaths due to coronary thrombosis and to cerebral hemorrhage. He hears nothing of the cardiac victims who live on, year after year, with chronic congestive failure, or of the arteriosclerotic patients who gradually fade away with nephritis and heart failure. Consequently, to his mind, heart disease and high blood pressure are causes of sudden death and are greatly to be feared.

Many patients have had the label "nervous heart" put upon them when the doctor could find nothing more than a simple tachycardia to explain the symptoms. In such a case, wouldn't it be better to tell the patient definitely that he has no heart disease, and try to explain the mechanism behind his symptoms?

In dealing with actual heart disease, it is easy to make a cardiac invalid by telling the patient that he has angina pectoris, or that he has a heart leak. Many a useful citizen has been made an invalid by such a simple statement as: "You have heart disease, you had better take it easy." Wouldn't it be better to tell him clearly what he has, what the danger signs are, and what is likely to produce those signs? Be specific! Tell him to learn his load limit, stay under it, and forget about his heart.

The layman knows that digitalis is a heart drug. When it is prescribed for him, he knows that he has heart disease. The indiscriminate use of this drug, therefore, is to be deplored. Its indications are relatively few and well

defined. It should never be used without definite indication.

Victims of *hypertension* constitute a terrific problem. Except for the aged arteriosclerotics, these people are "eager beavers." They are also likely to be worriers. It doesn't help one of these patients to be told: "My goodness! Your blood pressure is 220. It's a wonder you got here without having a stroke!" Wouldn't it be better to prescribe the proper medicines, explain his disease, stressing the point that he is not likely to have a stroke, and offer reassurance?

Practices That Create Alarm

Much harm can be done by giving alarming information. One of my patients had an episode of acute anxiety because I told him that he should have an operation for his stomach ulcer, because ulcers in the location of his sometimes become cancerous.

Even a doctor's facial expression may alarm a patient. If, in taking a blood pressure, the doctor looks surprised and concerned, his concern is immediately transmitted to the patient. All of us have been frightened by some physical findings or unexpected event. If we show that fright, the patient is immediately made worse. Imperturbability and a poker face are absolute essentials in good medical practice.

Another practice that may stir up anxiety is seeing patients too often. Seeing a patient two or three times a week for his blood pressure does not help him and, in all probability, serves to focus his attention more on his complaints. Seeing him too often may make him think he is much sicker than he really is.

Why do we do such things to our patients? Primarily, because we are not sufficiently sure of our diagnoses. We lack the courage of our own convictions.

The science and art of medicine is so great that no one doctor can master all of it; therefore, we sometimes err through ignorance. Sometimes we are so pressed by work that we don't take time for adequate explanations and instructions.

In a profession as large as ours, there must, unfortunately, be a few black sheep. These men frequently frighten their patients into needless consultations, purely from avarice. Many a self-made diagnosis is confirmed by a doctor because the patient seems to demand it and the doctor fears that the patient will go to someone else unless he concurs.

Conclusion

There is no set procedure for preventing the iatrogenesis of disease. Since every patient is a law unto himself, it behooves us to study each one carefully, and be discreet in what we say to him.

May I close with a plea and a quotation? The plea is old: "If you can do no good, be sure you do no harm." The quotation is from Oliver Wendell Holmes. He said: "The best doctor is the best inspirer of hope."

Discussion

Dr. Wingate M. Johnson (Winston-Salem):

In his brief paper Dr. McNeill has given much food for thought. I am sure that all of us have at times been guilty of alarming a patient unnecessarily. Unfortunately, the so-called neurotic patient is particularly susceptible to suggestion. At least this type of patient needs, more than anything else, understanding and the right sort of sympathy. It is a mistake to leave with them the impression that their symptoms are purely imaginary, and it is just as big a mistake to lead them to believe that a simple tachycardia from excitement may mean a serious heart disease, or that abdominal discomfort from lack of balance in the autonomic nervous system means that an operation is indicated. One of the things a doctor has to do is to keep his balance between the psychic and somatic elements of patients' ailments.

One point I would like to emphasize is that there is no substitute for time in dealing with neurotic individuals. Time is needed to get an adequate history, which is even more important than the physical examination. Securing such a history is not only essential to a diagnosis, but it is an important part of the therapy. A carefully taken history gives the patient a feeling of confidence in the physician which he cannot get from a hurried question or two and a rapid physical examination. I should like to emphasize Dr. McNeill's caution in the importance of selecting the proper words to use in telling a patient of his condition. Dr. Malford Thewlis, in his book on geriatrics, has a section called "Logotherapy"—meaning treatment by words. Dr. Thewlis makes the statement that it is possible to kill a patient with words—or conversely to benefit him greatly by repeating the right words.

Dr. McNeill is to be congratulated on bringing this subject to our attention in such a forceful way, and I am sure that all of us will be helped by his presentation.

There should be no moratorium on basic research, even in times of emergency. Research must provide a reservoir of facts and principles on which procedures can be based when the need arises. Too often we wait until confronted with an emergency, then make an appropriation and demand a miracle. Intensity can be substituted for time only to a limited extent, or not at all, in solving many scientific problems; It is just as wise to provide for "scientific stockpiles" as for stockpiles of critical materials; and the neglect of one can prove just as fatal as the neglect of the other. We need to emancipate ourselves from intellectual naivete with respect to the miraculous omnipotence of science to repair the wreckage of ignorance by ex post facto application of scientific laws. We need perspective; we need wisdom; we need time.—Stakman, E. C.: Science and Human Affairs, Science 113: 137 (Feb.) 1951.

THE MEANING OF HIPPOCRATES IN THE MEDICAL WORLD OF TODAY

FREDERICK R. TAYLOR, M.D., F.A.C.P.
HIGH POINT

The wise men of the Golden Age of Greece were the mightiest pioneers of thought in all human history. Their thinking was not merely along immediately practical lines, in which the thinkers of the modern scientific age have far outstripped them, but dealt with the basic fundamental principles of philosophy and of thought itself. Most fundamental of all was their obvious assumption of absolute freedom of thought as a *sine qua non* of progress. Even the tragic but sublime case of Socrates does no violence to this statement so far as the real thinkers were concerned, for Socrates upheld his right of freedom of thought and expression to the death, in the face of judges and enemies who were anything but great thinkers. Such insistence on freedom of thought and expression is desperately needed in the ideology-ridden world of today, in which a large proportion of the people of the earth dare not call their souls their own.

Foremost among these mighty pioneers of thought, so far as medicine is concerned, stands Hippocrates. Of the details of his life we know almost nothing. We are told by Soranus that he was born on the island of Cos in the fifth century B.C.—perhaps about 460, which would make him 33 years older than Plato. A combined medical school, hospital, and health resort was on the island. Virtually all the rest of the purported life and background of Hippocrates is legendary. I can think of no other supremely great medical man of whom it is so exclusively true that by his written works we must know him.

Contributions to Medicine

Among the basic contributions of Hippocrates to medicine, which are as valid today as ever, we must consider the following:

1. He would have none of slavery to tradition or authority, but insisted on direct, firsthand, personal observation. He observed not only the patient but his background, including his family, associates, manner of life, and the forces of the world of nature as a whole which played on him. His treatise *On Airs, Waters, and Places*, the first book ever written on the subject, shows this insistence on personal observation.

2. He recorded his observations for posterity. By doing so he not only gave us the finest case records of antiquity—valuable for present day study—but set an example for future generations of physicians to follow, although it was more than fifteen centuries before they did so in any appreciable number.

3. He bequeathed us the principle that the patient as well as his disease must be considered.

4. In his profound general medical philosophy and in the development of a great code of ethics in his celebrated Oath, he laid down the fundamental standards of medical practice for all time.

In discussing diseases or injuries in a systematic manner today, it is customary and convenient to utilize several subheadings. Chief among these are History, Etiology, Pathology, Symptomatology, Diagnosis, Prognosis, Prophylaxis, and Treatment. Let us examine Hippocrates' contributions to these various phases of medicine in so far as they have meaning for us today.

History

Even though he wrote a treatise *On Ancient Medicine*, Hippocrates never formulated a systematic history of medicine or of disease in general. However, his works are shot through with references to the ideas of others, ancient and contemporary, with which he often disagrees. Hippocrates *created* medical history more than he transmitted it. It has already been noted that he took careful histories of his patients, noting the manifold factors to be considered in each case.

Etiology

Perhaps as much as any medical man who ever lived, Hippocrates studied and understood the predisposing causes of diseases. That most of his notions of specific etiology have been set aside by modern science does not lessen the significance of predisposing causes. Today, apart from industrial medicine and public health, such causes are often passed over too lightly; so the Old Master's work in this field should have great meaning for us. Consider, for example, this passage from his work *On Airs, Waters, and Places*:

"Whoever wishes to investigate medicine properly, should proceed thus: in the first place to consider the seasons of the year, and what effect each of them produces . . . Then the winds, the hot and the cold, especially such as are common to

Read before the Bowman Gray Medical Society, January 31, 1950.
From the Department of Internal Medicine, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, North Carolina.

all countries, and then such as are peculiar to each locality. We must also remember the qualities of the waters, for as they differ from one another, so also do they differ much in their qualities. In the same manner, when one comes into a city to which he is a stranger, he ought to consider its situation, how it lies to the winds and the rising of the sun; for its influence is not the same whether it lies to the north or the south, to the rising or to the setting sun. These things one ought to consider most attentively . . . and the mode in which the inhabitants live, and what are their pursuits, whether they are fond of drinking and eating to excess, and given to indolence, or are fond of exercise and labor, and not given to excess in eating and drinking."(1)

No doubt, too, Hippocrates found "these matters" important in the field of prophylaxis.

The Father of Medicine insisted on the natural operation of cause and effect. In his famous work *On the Sacred Disease,* he wrote:

"It is thus with regard to the disease called Sacred: it appears to me to be no more sacred than other diseases, but has a natural cause from which it originates like other affections."(2)

Pathology

Of pathology, over and above the objective symptoms which may be observed in the living patient, Hippocrates had little to say. However, in the first paragraph of his treatise *On the Surgery,* he wrote:

"It is the business of the physician to know, in the first place, things similar and things dissimilar; those connected with things most important, most easily known, and in anywise known; which are to be seen, touched, and heard; which are to be perceived in the sight, and the touch, and the hearing, and the nose, and the tongue, and the understanding, which are to be known by all the means we know other things."(3)

He was evidently a master of physical diagnosis.

Despite the Greek prejudice against necropsies, it seems strange that such a great pioneer and exponent of firsthand observation makes no mention of them, so far as I know. Of his forty-two priceless case records, which Garrison(4) tells us are almost the only records of the kind for the next 1700 years, twenty-five ended with the death of the patient. However, none of the reports of these fatal cases go beyond the patient's death to mention any kind of postmortem examination.

Symptomatology

In this field Hippocrates showed his genius for observation, as two brief case records taken from Section III, Book I, of the work entitled *Of the Epidemics* will illustrate.

"CASE VIII. Erasmus, who lived near the Canal of Bootes, was seized with a fever after supper; passed the night in an agitated state. During the first day quiet, but in pain at night. On the second, symptoms all exacerbated; at night delirious. On the third, was in a painful condition; great incoherence. On the fourth, in a most uncomfortable state; had no sound sleep at night, but dreaming and talking; then all the afternoon worse, of a formidable and alarming character; fear, impatience. On the morning of the fifth, was composed, and quite coherent, but long before noon was furiously mad, so that he could not constrain himself; extremities cold, and somewhat livid; urine without sediment; died at sunset. The fever in this case was accompanied by sweats throughout; the hypochondria were in a state of meteorism, with distention and pain; the urine was black, had rounded substances floating in it, which did not subside; the alvine evacuations were not stopped; thirst throughout not great; much spasms with sweat about the time of death."(5)

We are not told as much of the details of the pain as we might wish, but certainly it involved the "hypochondria," which probably means the whole upper portion of the abdomen. No mention is made of a chill. However, we are told much in few words. As it stands, this case would be a beautiful subject for a modern clinicopathologic conference, had a necropsy been done. The Canal of Bootes suggests mosquitoes; the black urine, blackwater fever, though in that disease we would expect to find chills. Gallbladder or pancreatic disease, with black urine, probably would indicate jaundice. What were the round objects floating in the urine? Had some unknown condition caused true hematuria, with blood clots in the urine, we would expect Hippocrates to recognize them as such and would also expect sediment. Anyway, what condition causing hematuria would kill on the fifth day of the disease? These points, as the French might say, give one furiously to think!

The next case gives an adequate clinical record in eighty words.

"CASE IX. Criton, in Thasus, while still on foot, and going about, was seized with a violent pain in the great toe; he took to bed the same day, had rigors and nausea, recovered his heat slightly, at night was delirious. On the second, swelling of the whole foot, and about the ankle erythema, with distention, and small bullae (phlyctenulae); acute fever; he became furiously deranged, alvine discharges bilious, unmixed, and rather frequent. He died on the second day from the commencement."(6)

Diagnosis

It has already been noted that Hippocrates did not attach diagnostic labels to his case records, but that he had the attributes of a great diagnostician is indubitable. Diagnosis must always attempt to answer two fundamental questions, if it is to be complete in any broad sense. One is, "What kind of disease does the patient have?"; the other, "What

kind of patient does the disease have?" The ancients realized the importance of the latter question. When our profession became unduly subservient to the great German pathologists of the nineteenth and early twentieth centuries, some of its members lost sight of the *patient*, and treated diseases without treating patients. In recent years, under the term "psychosomatic medicine," we have returned to a proper consideration of the patient, which the *best* clinicians *never* forgot, even in the era of German scientific dominance. "Psychosomatic medicine" is merely a big term for well balanced, intelligent, sensible medicine.

The answers to both fundamental diagnostic questions depend on the three factors of *interrogation, observation,* and *interpretation.* In the treatise *On Regimen in Acute Diseases* we find:

"Those who composed what are called 'The Cnidian Sentences'* have described accurately what symptoms the sick experience in every disease, and how certain of them terminate; and in so far a man, even who is not a physician, might describe them correctly, provided he put the proper inquiries to the sick themselves what their complaints are. But those symptoms which the physician ought to know beforehand without being informed of them by the patient, are, for the most part, omitted, some in one case and some in others, with certain symptoms of vital importance for a conjectural judgment."(7)

We may infer from this passage that the Father of Medicine had some of the deductive and interpretative skill of Dr. Joseph Bell of Edinburgh, the famous prototype of Sherlock Holmes. Always, Hippocrates insisted on getting all the significant evidence possible and evaluating it *as a whole,* rather than making snap diagnoses by intuition, a procedure which the late Dr. J. Chalmers DaCosta used to characterize as a rapid means of reaching a wrong conclusion.

Prognosis

In the field of prognosis, Hippocrates was a giant. In *The Book of Prognostics* he gave us *the* great work on the subject. It contains the world-famous description of what is known to us as the Hippocratic facies of evil portent:

"2. . . . . a sharp nose, hollow eyes, collapsed temples; the ears cold, contracted, and their lobes turned out; the skin about the forehead being rough, distended, and parched; the color of the whole face being green, black, livid, or lead-colored."(8)

Here is another gem from this book:

"24. . . . One must judge of children as of others, which will die and which will recover, from the whole of the symptoms, as they have been specially described."(9)

* The School of Cnidos was the chief rival of the School of Cos.

Obviously, this statement is equally applicable to diagnosis, as has been mentioned.

In the *Aphorisms*(10), Section II, we find:

"43. If erysipelas of the womb seize a woman with child, it will probably prove fatal."

In Section VII of the same treatise:

"12. Phrenitis [i.e., inflammation of the brain, or, as we would say today, meningitis] along with pneumonia is bad.

"13. Convulsion or tetanus, coming upon severe burning, is bad.

"14. Stupor or delirium from a blow on the head is bad.

"15. From a spitting of blood there is a spitting of pus.

"16. From spitting of pus arise phthisis and a flux; and when the sputa are stopped, they die.

"17. Hiccup in inflammation of the liver is bad.

"18. Convulsion or delirium supervening on insomnolency is bad. . . .

"20. Mortification or suppuration upon erysipelas is bad.

"21. Suppuration upon a protracted pain of the parts about the bowels is bad. . . .

"86. In a chronic disease, an excessive flux from the bowels is bad.

Prophylaxis

All that has been said of Hippocrates' knowledge of the predisposing causes of disease under the heading of etiology may be applied in the field of prophylaxis, so far as such causes can be avoided or removed; and there seems no reason to doubt that the Old Master was the greatest authority of his day in preventive medicine.

Treatment

Naturally, modern methods of treatment have largely superseded those of Hippocrates, but his broad general concept of the necessity of knowing what to do and doing it, and, equally important, of knowing what *not* to do and *not* doing that, is one of the eternally valid principles of treatment. Anyone who has been a patient in the hospital of some modern medical teaching center must wonder if, with all our marvelous technical knowledge, we may not be forgetting the essential part played in good therapy by physiologic rest! There are still many times when "masterly inactivity," as Dr. John B. Deaver used to call it, is the best treatment a patient can get.

Contribution to Philosophy

This supreme medical philosopher of antiquity has left us many priceless pearls of wisdom, not only in his famous *Aphorisms,* but scattered througout his works. In the treatise *Of the Epidemics,* Section II, he wrote:

"5. The physician must be able to tell the antecedents, know the present, and foretell the future —must meditate these things, and have two special

objects in view with regard to diseases, namely, to do good or to do no harm. The art consists in three things—the disease, the patient, and the physician. The physician is the servant of the art, and the patient must combat the disease along with the physician."(11)

In the first paragraph of the work *On Fractures*, we read:

" . . . But many other things in our art are judged of in this manner, for people rather admire what is new, although they do not know whether it be proper or not, than what they are accustomed to and know already to be proper; and what is strange, they prefer to what is obvious."(12)

How the Old Master knew human nature!

Shrewd worldly wisdom mixed with a fine understanding of good treatment in the light of the resources of his day is found in the following passage from the work *On the Articulations*:

"63. In cases of complete dislocation of the ankle-joint, complicated with an external wound, whether the displacement be inward or outward, you are not to reduce the parts, but let any other physician reduce them if he chooses. For this you should know for certain, that the patient will die if the parts are allowed to remain reduced, and that he will not survive more than a few days, for few of them pass the seventh day, being cut off by convulsions, and sometimes the leg and foot are seized with gangrene. . . . But if not reduced, nor any attempts at first made to reduce them, most of such cases recover."(13)

Again, in the same treatise we find:

"78. The prime object of the physician in the whole art of medicine should be to cure that which is diseased; and if this can be accomplished in various ways, the least troublesome should be selected; for this is more becoming a good man, and one well skilled in the art, who does not covet popular coin of base alloy."(14)

(Attention, not only medical racketeers, but also certain modern patients who demand "the works" when they don't need them!)

The *Aphorisms*(10) constitute a solid book of medical philosophy. Beginning with one of the most famous aphorisms in the whole field of human thought, "Life is short, and the Art long; the occasion fleeting*; experience fallacious, and judgment difficult," the work is a rich mine of wisdom. So many of the aphorisms have already been quoted, that only one more, from Section VII, the concluding aphorism of them all, will be added:

"87. Those diseases which medicines do not cure, iron [the knife?] cures; those which iron cannot cure, fire cures; and those which fire cannot cure, are to be reckoned wholly incurable."

Finally, in Hippocrates' tiny treatise of one and a half pages *On the Law*(15) we read:

" . . . physicians are many in title but very few in reality.

"2. Whoever is to acquire a competent knowledge of medicine, ought to be possessed of the following advantages: a natural disposition; a favorable position for the study; early tuition, love of labor, leisure. First of all, a natural talent is required; for when Nature opposes, everything else is in vain; but when Nature leads the way to what is most excellent, instruction in the art takes place, which the student must try to appropriate to himself by reflection, becoming an early pupil in a place well adapted for instruction. He must also bring to the task a love of labor and perseverance, so that the instruction taking root may bring forth proper and abundant fruits."

What sound advice for both prospective medical students and medical school admissions committees today!

"3. Instruction in medicine is like the culture of the productions of the earth. For our natural disposition is, as it were, the soil; the tenets of our teacher are, as it were, the seed; instruction in youth is like the planting of the seed in the ground at the proper season; the place where the instruction is communicated is like the food imparted to vegetables by the atmosphere; diligent study is like the cultivation of the fields; and it is time which imparts strength to all things and brings them to maturity."

"4. Having brought all these requisites to the study of medicine, and having acquired a true knowledge of it, we shall thus, in traveling through the cities, be esteemed physicians not only in name but in reality. But inexperience is a bad treasure, and a bad fund to those who possess it, whether in opinion or reality, being devoid of self-reliance and contentedness, and the nurse of both timidity and audacity. For timidity betrays a want of powers, and audacity a want of skill. There are, indeed, two things, knowledge and opinion, of which the one makes its possessors really to know, the other to be ignorant.

"5. Those things which are sacred, are to be imparted only to sacred persons; and it is not lawful to impart them to the profane until they have been initiated in the mysteries of the science."

Conclusion

The works of Hippocrates show us beyond peradventure that, though methods improve as knowledge increases through the ages, the fundamental basic principles of medicine remain the same, yesterday, today, and forever.

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* Some translate the word "instant" rather than "fleeting."

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JUNE, 1951

THE NINETY-SEVENTH ANNUAL SESSION

The ninety-seventh annual session was one of the best in the history of the State Medical Society of the State of North Carolina. The weather was well nigh perfect, the papers presented were of a high order, the exhibits, both scientific and technical, were interesting and informative, and the guest speakers came up to expectations. Again the parent American Medical Association was well represented. President Elmer Henderson could not come, but sent a most acceptable replacement in Secretary George Lull, who addressed the First General Session on "1951: Medicine's First Year of Grace." North Carolina's native son, Dr. Frank Wilson, deputy medical director of the American Medical Association Washington office, and Mr. Aubrey Gates, field director of the American Medical Association Rural Health Committee, both spoke at the Officers' Breakfast.

An excellent innovation this year was the impressive memorial service held Sunday evening, presided over by President Roscoe McMillan. After the innovation Dr. Daniel S. Currie, chairman of the Committee on Necrology, read the names of the members who had died since the 1950 session of the Society, and the audience stood for a minute in silent tribute to them. A splendid musical program was then rendered by the Flora Macdonald College Choral Club, under the direction of Dean Robert Smith. The exercises were concluded with a sermon by Rev. C. Sylvester Green, D.D.

The Executive Committee had a busy Sunday, preparatory to the meeting of the House of Delegates on Monday; but even with much of the way being cleared for the larger body, it was in session until almost midnight. Much of the time was consumed by a lengthy discussion of the report of the Committee on Prepaid Medical Service, presented by Dr. O. Norris Smith of Greensboro. The report as finally adopted by a large majority is to be found on page 243 of this issue. It is to be hoped that the Committee will be given the support of the members of the Society.

Dr. E. B. Lattimore of Shelby was elected as North Carolina's General Practitioner of the Year. Last year, it may be recalled, he was runner-up to Dr. Roscoe McMillan, and this year he won the honor by a large majority.

The First General Session began at 9 a.m. on Tuesday, but was preceded by the Officers' Breakfast at 7:30. The breakfast, as heretofore, was well attended, and those present were well repaid for their early rising by the excellent program arranged. In addition to Dr. Wilson and Mr. Gates, Dr. Maurice Pincoffs, professor of medicine at the University of Maryland, spoke on "Maryland's Medical Program for the Indigent."

After the call to order and invocation, the first business of the General Session was the

report of the Committee on the Moore County Award. Dr. Parker Beamer, professor of microbiology and associate professor of pathology at Bowman Gray, was presented with the gold medal for his paper, "Studies on Experimental Leptospirosis (Weil's Disease)."

In addition to Dr. Lull, other visiting guest speakers at this session were Dr. Harry H. Gordon of Colorado, who spoke on "Some Problems of Prematurity"; Dr. Robert H. Flinn, consultant, Health Resources Office, Washington, "The Physician's Role in Civil Defense"; and Dr. Robert Fleming of Boston, "A Medical Concept of Chronic Alcoholism." A high light of this morning and of the whole session was the presentation of the High School Essay Contest winner, Joe Baxter Roberson of Candler. Joe's paper also won second prize in the National Contest, sponsored by the Association of American Physicians and Surgeons. This paper will be published in an early issue of the *North Carolina Medical Journal.*

The President's Dinner Tuesday night was featured by two excellent addresses, Dr. Roscoe McMillan's "Your Business and Mine," which appeared in last month's *Journal,* deserves to be ranked with the best of our Society's presidential addresses. It merits a thoughtful reading and re-reading, even by those who may have heard it. Dr. Howard Rusk, the dynamic head of New York University's Department of Physical Medicine and Rehabilitation, and chairman of the National Advisory Committee to Federal Selective Service System, spoke on "Medicine, Mobilization, and Manpower." It is doubtful if any guest speaker of our State Society ever held his audience more completely spellbound than did he. The prolonged applause given both speakers was proof of the genuine appreciation of the audience.

After the dinner, Henry L. Scott gave a humorous piano recital which seemed to appeal equally to musicians and non-musicians. After this the President's Ball began about 11 p.m. and continued until the wee small hours.

The effect of the late hours kept by many was reflected in the opening of the Second General Session. Even though it began half an hour late, only a handful were present for the first paper. All papers were good, but the high light of the session was Dr. Philip Thorek's discussion of jaundice. According to custom, the General Session was recessed at 12 noon for the Conjoint Session with the State Board of Health. Dr. Roy Norton's address, which was full of meat, will be published in an early issue of this journal.

After the session was resumed, Drs. W. M. Nicholson and John B. Graham were elected to succeed themselves for another four year term on the editorial board of the *North Carolina Medical Journal.*

The Nominating Committee brought in its report at the final meeting of the House of Delegates on Wednesday afternoon. It may be recalled that this committee was appointed at the 1950 Session, and has had a year for deliberation. Their report, which apparently met with general approval and was accepted unanimously, was as follows: President-elect, Dr. J. Street Brewer; first vice-president, Dr. Forrest Houser; second vice-president, Dr. A. L. Daughtridge; Speaker of the House of Delegates, Dr. Roscoe D. McMillan; Vice-Speaker of the House of Delegates, Dr. Paul F. Whitaker; members of the North Carolina State Board of Health, four year terms, Drs. G. Grady Dixon and G. Curtis Crump; delegates to the Virginia Society, Drs. John R. Bender, Powell G. Fox, and John A. Payne, III; to the Tennessee Society, Drs. V. H. Duckett, H. B. Ditmore, N. F. Lancaster; to the Georgia Society, Drs. C. H. Hemphill, W. F. Hollister, and W. M. Peck; to the South Carolina Society, Drs. Thomas Byrnes, L. B. McDonald, Claude Milhorn; to the North Carolina Dental Society, Dr. W. R. Berryhill.

At the third and final General Session, Dr. Fred Hubbard of North Wilkesboro was installed as president. Dr. Hubbard has been one of the hardest working and most faithful members of the State Society, and richly deserves the honor. President Roscoe McMillan has set a record for achievement during the past year, and Dr. Hubbard's many friends know that he will prove a worthy successor. And looking ahead, Dr. Street Brewer can be expected to maintain the high standard of his predecessors.

* * *

NATIONAL FUND FOR MEDICAL EDUCATION

A meeting held on May 16 was called by President James B. Conant of Harvard "one of the most important held in New York since the end of World War II." This meeting accomplished the establishment of the National Fund for Medical Education, with former President Herbert Hoover as honorary chairman and Mr. S. Sloan Colt, president of the Bankers Trust Company, New York, as president. Its board of sixty-six trustees is composed of distinguished men from all parts of the country. Its advisory council of twenty is composed of leading university presidents and members of the Council on Medical Education and Hospitals of the American Medical Association and of the Executive Council of the Association of American Medical Colleges.

As the *Journal of the American Medical Association* (May 19) stated editorially: "The objective of the Fund is to raise annually from voluntary sources substantial sums for the support of the nation's medical schools. . . . The Fund has set a goal of $5,000,000 to be raised during its first year.

The American Medical Education Foundation, which began with a $500,000 fund from the American Medical Association, will merge its contributions with the National Foundation. In his address before the organizational meeting, President Elmer Henderson made it plain that the doctors of America were not to relax their efforts on behalf of medical education. "We pledge you," said he, "that we shall not relax our efforts to secure through our foundation ever increasing support from the medical profession for this important undertaking."

In his *Secretary's Letter* for May 28, Dr. George Lull said: "The meeting made one point crystal clear: that a determined effort is going to be made by industry, the medical profession, organized labor, agriculture, universities and scientific and educational foundations to meet the critical financial needs of the medical schools voluntarily instead of depending on government assistance. A federal aid to medical education bill (S. 337) is pending in the senate. The bill carries grave danger of federal control of the nation's medical school."

More and more it is evident that the reaction—inevitable for the United States of America—against the encroachments of socialism is well under way. It is fitting that the medical profession should have a part in the salvation of our freedom.

* * *

THE VETERANS ADMINISTRATION RED TAPE

It is exceedingly difficult for a layman to understand why doctors object to lay control of medical practice. A recent communication to a Winston-Salem doctor from the adjudication officer of the Veterans Administration will help to explain the doctors' attitude. The name of a veteran was typed at the top of the following form letter:

Dear Doctor:

The veteran named above has made application to the Veterans Administration for disability compensation and has stated that he was treated by you professionally on or about 1948.

Disability compensation is granted to ex-service persons who are found to be suffering from a disease or injury disabling to an appreciable extent which is attributable to military or naval service.

In order that the Veterans Administration may arrive at an equitable decision in this case it is essential that all information pertinent to any disease or injury from which this person may have suffered, either during the period of his military or naval service or subsequent thereto, be developed.

Appreciating, therefore, your desire to be of assistance to him in enabling him to secure the benefits to which he may be entitled under the law, it is respectfully requested that you submit under oath the information solicited on the reverse side of this letter. An addressed envelope which requires no postage is enclosed for your convenience in returning this form.

Very truly yours,

On the reverse side was a form to be filled out asking for information, preferably from office records. Two and one-half inches of typewriter paper was allotted for "a verbatim transcript of such records." Inasmuch as the report to the patient's doctor covered a page and a half of typing, single spaced, it is hard to see how it could be squeezed into two and one-half inches.

At the bottom was left a space for the paper to be subscribed to and sworn to by a notary public, and for a notary public's seal. Finally, a penalty of $1,000 fine, one year's imprisonment, or both was threatened, in case any false or fraudulent statement should be made.

Any civilian doctor who has attempted to get information from a veterans hospital knows quite well that it is necessary to obtain a request in writing from the patient who was treated in this hospital; yet no

such authorization was granted in the letter sent out from the Veterans Administration.

It seems to a plain, blunt civilian doctor that it is hardly fair to expect him to transcribe a report on a former patient, and then to have it assumed that he will lie about it unless he swears to the statement. It is true that a stamped envelope was furnished for a reply; but, aside from this, all expenses, including a notary public's fee, were to be borne by the doctor making the statement. It seems that this is asking a good deal of him—particularly when fine and imprisonment are threatened should he have been mistaken in the diagnosis of a case seen three years previously.

* * *

DR. WILLIAM DEBERNIERE MACNIDER

The daily papers announced that on May 31 Dr. William deB. MacNider died in a Durham hospital. Because he so loved life, and got so much from life, it is hard to believe that he is no longer with us in the flesh.

Dr. MacNider began his teaching career at the University of North Carolina while he was still an undergraduate student. This was quite in keeping with his character, for all the rest of his life he continued to be both a teacher and a student. He was almost certainly the most famous medical man that North Carolina ever produced. His research made him an international authority on the kidney. The long list of his achievements in *Who's Who* is evidence of the wide recognition given him at home and abroad. Although he walked with the kings of medicine, however, he never lost the common touch. His capacity for friendship seemed unlimited.

Dr. MacNider was graduated in 1903 from the University medical school during its brief life as a four year school. It is not too much to say that the quality of the work done by him as professor of pharmacology, as well as his constant research, has done much to keep alive in the University two year school of medicine the high standards of medical teaching and research that made possible its expansion into a four year school. His legion of friends rejoice that he lived to see this lifelong dream realized. Nothing better could be wished for the full grown University of North Carolina School of Medicine than that it may retain Bill MacNider's enthusiasm as teacher and as student.

De KRUIF AGAIN BEFRIENDS THE DOCTORS

For the second successive month Dr. Paul de Kruif speaks up for the medical profession. In the *Reader's Digest* for June he demolishes the oft-repeated statement that our nation is facing a serious shortage of doctors. He begins by saying that "such incessant propaganda" comes in great part from the Federal Security Agency, and that the American Medical Association is charged as being "the one big obstacle in the path of Congressional efforts to meet that shortage with federal aid to medical education."

Then Dr. de Kruif shows conclusively that we already have more doctors in proportion to population than any other great nation has or ever has had before, and that the proportion is steadily increasing.

This article should be of particular interest to North Carolinians, because almost a column—or one-eighth of the article—is devoted to our own Dr. George Bond of Bat Cave. It should be of interest to all doctors in the country, also, because it exposes the unscrupulous methods used by Oscar Ewing and his crew, in their efforts to get control of medical practice in this country. Thanks are due de Kruif and the *Reader's Digest* for publishing this fair and factual article.

* * *

A BOUQUET FOR DR. McMILLAN

The *News and Observer* for May 10 devotes its leading editorial to favorable comment upon Dr. Roscoe McMillan's presidential address, especially the part dealing with the prepaid medical insurance plan for the low income groups. "Nobody in his right mind," quoth the editorial, "can accuse Dr. McMillan of advocating socialized medicine. . . . What he urged was immediate action on the doctor's own statewide plan of voluntary, prepaid medical insurance for low income groups. . . ." The editorial continues:

> "It is to be hoped that such wise counsel will be heeded in medical circles in North Carolina.
>
> "Nothing is more apparent in North Carolina and in America at this hour than that if 'socialized medicine' comes it will not be brought by radical politicians but by stubborn and socially unenlightened physicians. More men like Dr. McMillan in the medical profession need to speak out for the profession's determination upon the widest possible and least burdensome ministry of healing for all the people."

Committees and Organizations

PROCEDURE FOR COMMITTEE ON GRIEVANCES

By action of the House of Delegates in May, 1950, there was established a permanent Committee on Grievances to consist of the five immediately available past presidents of the Society.

In compliance with the By-Laws there is published herewith in the *North Carolina Medical Journal* the "Rules of Procedure for the Committee on Grievances." These rules are based entirely upon the By-Laws which are rather detailed and specific.

1. The Committee shall be composed of the five most recently available past presidents.

2. The chairman shall be the oldest in point of service, with a vice-chairman and secretary to be selected from members of the Committee.

3. The Committee shall formulate rules of procedure. After approval by the Executive Council and ten days after publication in the *North Carolina Medical Journal*, the rules are to be binding upon all members. In the absence of written notice to the contrary given to the Secretary of the Society by any member, all members of the Society shall be deemed to have consented to these By-Laws.

4. Neither members of the Committee on Grievances nor the Society shall be held responsible by any member of the Society for defamatory or libelous words or statements published by them in good faith and in the performance of their or its duties as members of the Committee on Grievances.

5. Professional conduct shall be determined by the current editions of the "Principles of Medical Ethics of the American Medical Association."

6. The Committee shall:

(a) Supervise ethical deportment of the membership of the Society.

(b) Make recommendations for improvement of professional conduct.

(c) Receive and investigate complaints against any physician prepared in writing and signed by any person, lay or professional.

(d) Advise any members on professional conduct.

7. The Committee shall:

(a) Receive evidence and pass its own judgment upon it.

(b) Attempt to settle complaints amicably, but not assume authority to discipline any physician.

(c) At its discretion, file charges with the Executive Council of unethical conduct against any physician deemed to be guilty.

8. No member of the Committee on Grievances may participate in deliberations nor be present at a hearing concerning the conduct of a physician living within the jurisdiction of the member's County Society.

9. The Committee shall have authority to summons members of the Society to appear before it.

10. During a hearing or the consideration of a complaint no person other than the Committee and the person being heard shall be present. This does not apply to the Attorney of the Medical Society of the State of North Carolina nor those representing either party to a complaint. If a stenographer is necessary, he shall be sworn to secrecy and cannot be a regular employee of the Society.

11. All complaints shall be kept in professional confidence.

12. The Secretary of the Committee shall:

(a) Acknowledge in writing all complaints received in writing.

(b) Shall arrange for meetings as necessary, with the approval of the Chairman.

(c) Shall give advance notice of meeting places and dates to all concerned.

(d) Shall keep the Chairman informed as to the progress of all investigations.

13. The Chairman shall decide whether a complaint should be considered by the entire committee or have a preliminary investigation by one or more members.

14. When the Chairman and one other member are convinced by an informal investigation that no disciplinary action is necessary and when both parties to the complaint agree to accept their recommendations, the matter may be reduced to writing, copies furnished both parties and the file closed.

15. If disciplinary action is thought to be indicated the matter shall be presented to the Committee as a whole.

16. In complaints concerning professional fees the Committee shall determine the amount deemed to be fair and proper. If the member does not accept the amount so determined the matter shall be referred to the Executive Council.

17. The Secretary of the Committee shall have broad powers and discretion in securing

the amicable settlement of complaints, but shall make a report of all cases to the Committee.

18. The Committee may file, over the handwritten signature of all of its members, charges against a member of the Society with either the Board of Censors of a County Society or the Executive Council of the State Society.

19. Findings against a physician who is not a member of the State Society but which do not justify proceedings before the State Board of Medical Examiners shall be reduced to writing and, subject to advice of legal counsel, furnished the physician concerned and the Executive Secretary of the State Society.

20. Both parties to a complaint shall be presented a written statement of the findings of the Committee.

21. Statements concerning non-secret actions taken on ethical deportment may be furnished the *North Carolina Medical Journal* for publication.

22. The Committee shall keep appropriate records of its actions and shall make an annual report and recommendations to the House of Delegates.

23. The Executive Council shall provide funds for the travelling and living expenses of members in fulfilling their duties on the Committee.

24. The Committee shall hold such meetings as may be necessary.

25. The establishment of a Committee on Grievances shall be given full publicity so that the people of the State may be aware of its existence and its functions.

These Rules of Procedure have been approved by the Executive Council.

Paul F. Whitaker, M.D., Chairman
Oren Moore, M.D., Vice-Chairman
G. W. Murphy, M.D., Secretary
William M. Coppridge, M.D.
James F. Robertson, M.D.

COMMITTEE ON PREPAID MEDICAL INSURANCE

The Insurance Committee recommends the adoption of the following resolution by the House of Delegates:

RESOLVED,

1. That the Insurance Committee be continued for another year with authority to improve the proposed Operative Schedule of Fees by correcting inequities which have been pointed out, and to make such alterations in the Subscriber's Certificate and the Physicians Participating Agreement as may be deemed advisable.

2. That the compromise settlement reached by the Hospital Saving Association Board of Trustees and endorsed by the Hospital Care Association Board of Trustees concerning the payment of x-ray-pathology-anesthesia benefits in a combined hospital and professional certificate be approved.

3. That Hospital Care Association and Hospital Saving Association be requested to write a proposed companion hospital certificate or a combined hospital-professional certificate satisfactory to both associations with appropriate co-insurance features necessary to control the cost and to curtail abuse, and to submit such proposed certificate to the Insurance Committee within 90 days for consideration, including proposed rates; and that in event they cannot agree on the terms of such a consolidated certificate, that each association be requested to submit its recommendations for such a certificate which it would issue.

4. That the Insurance Committee be and it is hereby authorized and empowered, subject to the approval of the Executive Council of the Society, either to incorporate a Physicians' Service Company for the purpose of issuing and administering a professional service certificate in accordance with a resolution adopted by the 1950 House of Delegates, or to approve and endorse a similar prepaid medical insurance plan by one or more existing associations or companies, with the provision that the association or company whose plan might be thus approved will follow the recommendations of the committee of this Society with regard to changes to be made in the fee schedule in the light of future experience, and in the settlement of disputed claims for professional fees.

Provided further that the approval or endorsement by this Society or its committee of a prepaid medical service plan issued by any association or company shall not be considered as constituting any restriction of the right and privilege of any individual member of the Society to decline to participate in any plan approved by the Society, or to participate in any prepaid medical service plan handled by and through any other association or company.

News Notes from the University of North Carolina School of Medicine

Dr. Nathan A. Womack, professor and head of the Department of Surgery at the University of Iowa, has accepted the position as professor and head of the Department of Surgery at the University of North Carolina School of Medicine, and will come to Chapel Hill in the late summer. Dr. Womack is a native of Reidsville, a graduate of the University of North Carolina and of Washington University School of Medicine. Before assuming the headship of the Department of Surgery at the University of Iowa, he was professor of clinical surgery at Washington University. He is a member of the American Surgical Association, the Society of Clinical Surgeons, the Society of University Surgeons, as well as of many other societies in his special field.

News Notes from the Bowman Gray School of Medicine of Wake Forest College

Dr. Frank Ray Lock, professor of obstetrics and gynecology, has succeeded Dr. C. C. Carpenter as medical director of North Carolina Baptist Hospital. Dr. Carpenter asked to be relieved of this office, which he has held for ten years, in order to devote more of his efforts to his duties as dean of the medical school and professor of pathology. Dr. Lock, who has been with the school since it opened in Winston-Salem, will also be recommended for the post of associate dean.

* * * *

A class of sixty-one students were candidates for degrees in commencement exercises scheduled for June 10 and 11 when the tenth anniversary of the establishment of the Bowman Gray School was observed. Special tribute was paid at that time to the members of the Gray family who made the school possible through their gifts. Dr. H. W. Tribble, president of Wake Forest College, delivered the commencement address, and Dr. Mark Depp, pastor of Centenary Methodist Church, delivered the baccalaureate sermon. Two M. S. degrees were awarded at that time.

* * * *

Dr. Parker R. Beamer, professor of microbiology and immunology, received the Moore County Award during the annual meeting of the Medical Society of the State of North Carolina at Pinehurst. The award is made to the author of the best paper presented at the meeting of the preceding year. Dr. Beamer's subject was "Studies on Experimental Leptospirosis (Weil's Disease)."

* * * *

Dr. Carmillo Artom, professor of biochemistry, and Dr. David Cayer, associate professor of internal medicine, were among the twenty-five investigators who attended the seventh Conference on Liver Injury sponsored by the Josiah P. Macy, Jr., Foundation in New York City on May 20 and 21. Dr. Artom presented a paper on "Mechanism of Action of Lipotropic Factors in Animals and Man," and Dr. Cayer opened discussion on the paper. Dr. C. H. Best of Toronto, Canada, was chairman of the conference.

Dr. C. Hampton Mauzy, associate professor of obstetrics and gynecology, was chosen president-elect of the North Carolina Obstetrical and Gynecological Society at a recent meeting of the society at Mid-Pines.

* * * *

Dr. Eben Alexander, assistant professor in surgery, prepared an exhibit on "Cerebral Angiography" for the meeting of the State Medical Society.

* * * *

Dr. Frank R. Lock was elected to membership in the American Gynecological Society at the centennial meeting held in New York City this month.

Buncombe County Medical Society

The following resolution was passed by the Buncombe County Medical Society at its monthly meeting October 16, 1950.

"When a member of this society has earned the respect and admiration of our profession, no less than that of the citizens of this community, and has labored long and faithfully for over forty years; it is seemly that we should—with pride and gratitude—recall his achievements and express our regret that he has left us to return to his native state. Such a man is Paul H. Ringer.

For the sake of the younger men who were not privileged to know him, let it be said that he first came to Asheville to assist the late Dr. Chas. L. Minor, later becoming his associate. Paul Ringer is a gentleman as well as a man of scholarly attainments. It follows that he was an ornament to our profession. Aside from being a student of medicine, he is well read, versatile and an eloquent speaker. Being blessed with equanimity and a keen sense of humor, he has taken fortune's buffets and awards with equal thanks. His ability was not slow in being recognized and rewarded by the profession. He wrote and had published many medical papers—always characterized by erudition and common sense. He was always active in the affairs of this society before which he read and discussed numerous papers. He made his way by the force of his merit. His profession bestowed upon him every office of honor both in this and in the State Society. Later, he became president of the Southern Medical Society, than which there is no greater honor. He fulfilled his duties as a citizen to a rare degree both for his church and for any other worthy cause. Be it resolved by the Buncombe County Medical Society that we deeply regret that he has left us and that we hope that he will find, during the sunset of life, that satisfaction and pleasure which he has so richly earned through years of accomplishment, service and sacrifice."

Pender County Medical Society

The Pender County Medical Society was recently organized with the following physicians as charter members: Dr. W. I. Taylor, Sr., (honorary), Dr. W. I. Taylor, Jr., Dr. N. C. Wolf, Dr. G. C. Beard, and Dr. A. Henry Dunn. Dr. W. I. Taylor, Sr., was elected president, and Dr. G. C. Beard secretary of the new organization.

News Notes

Dr. O. L. Miller, after an absence from his office due to impaired health, has resumed practice with his associates of The Miller Orthopaedic Clinic, 123 West Seventh Street, Charlotte.

Dr. Alexander Webb, Jr., has moved his offices to 221 York Building, Cameron Village, Raleigh. His practice is limited to surgery and gynecology.

Alpha Epsilon Delta Celebrates Silver Anniversary

Representatives from fifty-four chapters totaling 285 delegates, student members, and chapter faculty advisers assembled for the twenty-fifth anniversary celebration of Alpha Epsilon Delta at the University of Alabama on March 21-24.

Features of the program included a Memorial Service and the Fourth Regional Conference on Premedical Education.

At the Convention banquet, held on Thursday evening with Dr. Hugh E. Setterfield presiding, North Carolina Gamma (Wake Forest College), was among the chapters which received awards for their activities during the past three years. The North Carolina Gamma Chapter also won the award for having the largest attendance at the Convention.

The general session of the Fourth Regional Conference on Premedical Education, held on March 23, featured a discussion on "The Educational Problems for the Study of Medicine." Among the speakers was Dr. J. E. Markee, Duke University School of Medicine.

North Carolina had twenty-nine representatives and faculty members from chapters at Davidson College and Wake Forest College at the convention.

Michael Reese Hospital Postgraduate School

The Michael Reese Hospital Postgraduate School is offering a two-week course in "Diseases of the Endocrines—Physiology and Diagnostic Methods," July 9-21, 1951. Dr. Rachmiel Levine, Director, Department of Metabolic and Endocrine Research, is coordinator of the course.

A full-time intensive course in "Hematologic Diagnosis," under the direction of Dr. Karl Singer, will be presented from July 23 to August 4. This two-week course offers a review of the present status of hematology and instruction in actual reading of slides of normal and pathological specimens of peripheral blood and bone marrow. For further information, address: Dr. Samuel Soskin, Dean, 29th Street and Ellis Avenue, Chicago 16, Illinois.

American Hearing Society

Miss Margaret Alice Fraser of Upper Darby, Pennsylvania, has been named winner of the 1951 Kenfield Memorial Scholarship, according to an announcement by Miss Rose Feilbach, chairman of the Teachers' Committee, the American Hearing Society, Washington, D. C.

The award, made annually by the Society, entitles the successful applicant to take a teachers' training course in lip-reading from any normal training teacher, school or university in the United States offering a course acceptable to the Teachers' Committee.

Arthritis and Rheumatism Foundation

The Arthritis and Rheumatism Foundation is offering research fellowships in the basic sciences related to arthritis. Fellowships will be granted at both the predoctoral and postdoctoral levels. The predoctoral fellowships will range between $1,500 and $3,000 per annum, and the postdoctoral from $3,000 to $6,000. The deadline for these applications is November 15, 1951. Application forms may be obtained by writing the Medical Director, Arthritis and Rheumatism Foundation, 535 Fifth Avenue, New York 17, N. Y.

National Gastroenterological Association

The National Gastroenterological Association has announced that its course in postgraduate gastroenterology will be given at the Drake in Chicago, Illinois, on September 20, 21, and 22.

This year the course will again be under the direction and co-chairmanship of Dr. Owen H. Wangensteen, professor of surgery of the University of Minnesota Medical School, who will serve as surgical co-ordinator, and Dr. I. Snapper, director of medical education at Mt. Sinai Hospital, New York, who will serve as medical co-ordinator.

Drs. Wangensteen and Snapper will be assisted by a distinguished faculty selected from the medical schools in and around Chicago, whose presentations will cover diseases of the mouth, diseases of the esophagus, peptic ulcer diseases of the stomach, disease of the pancreas, cholecystic disease, psychosomatic aspects of gastrointestinal disease, diseases of the liver, diseases of the colon and rectum, and other miscellaneous subjects including pathology and physiology, radiology, gastroscopy, and others.

For further information and enrollment write to the National Gastroenterological Association, Department GSJ, 1819 Broadway, New York 23, New York.

American Heart Association

The twenty-seventh Annual Meeting and the twenty-fourth Scientific Sessions of the American Heart Association were held in Atlantic City, New Jersey, from June 6 to June 10, 1951.

Chairmen of each of the four scientific sessions included Dr. Howard B. Sprague, Boston, president of the American Heart Association; Dr. E. Cowles Andrus, Baltimore, chairman, Program Committee; Dr. T. Duckett Jones, chairman, American Council on Rheumatic Fever; and Dr. A. C. Corcoran, Cleveland, a member of the Section on Circulation of the Scientific Council.

Dr. Carl Voyles, Jr., and Dr. Edward S. Orgain of Durham, North Carolina, presented a paper on "Resin Therapy In Chronic Congestive Failure" at the Fourth Session.

Yeshiva University Medical School

On December 15, 1950, New York State's Board of Regents, amended the Charter of Yeshiva University empowering it to open a medical and dental school. This marked the first such move by the Regents in 114 years for a medical school charter.

In seeking to establish a medical school, Dr. Samuel Belkin, president of the university, explained that Yeshiva University is anxious to render service to our nation and, especially, to solidify Jewish con-

tributions to American higher and professional education. As the first American university under Jewish auspices, "Yeshiva University is deeply concerned in blazing a trail of its own in the field of higher education in conformity with the great American democratic traditions of education and in harmony with the spiritual heritage of Judaism," Dr. Belkin said.

AMERICAN COLLEGE OF SURGEONS

The American Foundation of Occupational Health has taken over on May 1 the evaluation and approval of medical services in industry which has been conducted by the American College of Surgeons for the past twenty years, according to Dr. Paul R. Hawley, Chicago, director of the College. The Foundation is setting up a board of governors to guide them in the new project. On this board will be three representatives each from the Industrial Medical Association (formerly the American Association of Industrial Physicians and Surgeons) and from the donors to the project; two each from outstanding business executives; and one each from the American College of Surgeons, the American College of Physicians, the American Medical Association, the American Academy of Occupational Medicine, the Association of American Medical Colleges, the Association of American Schools of Public Health, and the Industrial Hygiene Foundation.

* * *

The American College of Surgeons will hold its thirty-seventh annual Clinical Congress in San Francisco, November 5 to 9, 1951, with headquarters at the Fairmont Hotel and Civic Auditorium. The thirtieth annual Hospital Standardization Conference is scheduled to be held concurrently, with meetings in the Civic Auditorium, as a part of the Congress. The combined programs will include scientific and technical exhibits, color television, cine clinics, medical motion pictures, scientific sessions, panel discussions, conferences, symposia, official meetings and forums. Several thousand surgeons and hospital representatives are expected to attend.

(BULLETIN BOARD CONTINUED ON PAGE 251)

Classified Advertisement

OFFICE SPACE — CHAPEL HILL, N. C.

Excellent opportunity for General Practice and/or Pediatrician.

Ground Floor, Close in.

Contact: James R. Farlow
Attorney at Law
Phone 5126

FOR SALE

Doctor's complete equipment for general practice — microscope, centrifuge, baumanometer, steel folding examination table, haemacytometer, urethral sounds, dental forceps, 75 items, $1,000 value. Sell half price.

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300 Hawthorne Road
Winston-Salem, N. C.

AUXILIARY

PRESIDENT'S LETTER

In Appreciation!

It was a good year, thanks to all of you who worked so hard and made it possible. Your reports were wonderful. They showed real awareness of the important things, not only awareness, but willingness to do something about them, which is so vital!

You have made my year as president one of the richest in my life. Names have become faces, and faces have become those of friends I shall always cherish. I am truly grateful to you for the many privileges you have given me.

Your new president, Mrs. B. Watson Roberts, Durham, has things well organized, and is full of enthusiasm and new ideas. I know the coming year will be an outstanding one as you work with her with the same zeal you worked with me last year.

May your lives be greatly enriched as you give your services so freely to worth-while things.

Sincerely,
Louise Johnson (Mrs. Harry L.)
President

* * *

REVISIONS

We should like you to study the following revisions and be ready to vote upon them at the Fall Board Meeting.

STUDENT LOAN FUND:

Article II, Section 2: Change to read:
The loan shall be limited to $500.00 a year for two years to any one individual.

It was further suggested that the incoming president appoint a committee to revise Article III, Section 2 (membership and dues) of the By-Laws concerning honorary members. The following report was given by the revisions chairman, Mrs. John T. Saunders, Asheville. We should like you to give it your careful consideration. It will also be discussed at the Fall Board Meeting.

* * *

REPORT OF THE REVISIONS COMMITTEE

Our Auxiliary is now 28 years old. During this time we have made no provisions for honorary members. We have been busy seeking new members and making a good state organization. While there are some members

A Further Report to Members of the Medical Society of the State of North Carolina

Our announcement increasing the limits of our Accident and Health policies in the Medical Society Group from $50.00 per week to $75.00 per week, ($325.00 per month), has had remarkable response. Several hundred have applied for the increase up to the limit.

If you are under age 60, and overlooked applying for the increase during the period from April 8th to June 8th, please write me promptly, and I will do the best I can for you.

If you are not insured under your Society Group, now is the time to apply.

$75.00 per week ($325.00 per month) for loss of time from practice

$5,000.00 for accidental death or dismemberment including speech and hearing

Annual premium only $116.00
Semi-Annual premium $58.00

J. L. CRUMPTON, State Mgr.

Post Office Box 147 **Durham, N. C.**

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COMMERCIAL CASUALTY INSURANCE COMPANY
NEWARK, NEW JERSEY

whom we have honored for a long time, we have not officially made them honorary members.

According to the Constitution and By-laws of the Medical Society there are two classes of honorary members: "Those who have won distinction by their contributions to medical science, and elderly physicians who, prior to their retirement, have displayed a proper interest in the welfare of the Society; and 'honorary fellows,' those who have been Fellows continuously for thirty years."

The Auxiliary, while patterned after the Medical Society, is different. In our organization membership is voluntary, but once in a county organization, members must pay dues to the State and National Auxiliaries as well as to the local organization.

Age makes a difference. Now that we have passed the quarter century mark we must revise or add to our Constitution to provide for members we wish to honor. First, this committee believes that honoring a member should be an honor for her, not because her husband is an honorary member of his society. Second, since our organization is in its infancy and many members who should be honored are still among our most enthusiastic and interested members, they should not be deprived of their vote or ability to hold office.

To most of us, paying dues once a year is a minor problem, but an honorary member should be free from dues.

At this time the Committee would like to present the following three Revisions to be voted upon. According to the Constitution and By-laws these Revisions can be voted upon, though no member can be voted into honorary membership until after confirmation at the Fall Board Meeting.

1. State Auxiliary: (a) At any regular meeting of the State Auxiliary a member may be voted to honorary membership by a majority vote, providing the name has been presented and passed upon at the Fall Board Meeting. To be nominated a member must have won distinction in the display of interest and in the welfare of the Auxiliary. She should be exempt from dues and shall be entitled to all the privileges of the Auxiliary. The State Society shall assume the responsibility of paying National dues for such a member.

(b) Any member who has been a member of the Auxiliary continuously for 30 years and whose dues have been paid during that time shall be an honorary member and shall be entitled to all the privileges of the Auxiliary. She shall be exempt from all dues and fines and her State and National dues shall be paid by the State Auxiliary.

2. County Auxiliaries may at any time, by unanimous vote, elect honorary members. Such members shall be exempt from all dues and fines and shall be entitled to all the privileges extended other members. The County Auxiliary shall assume the responsibility of paying dues, State and National, for such members.

3. Widows: At the death of a doctor in good standing his widow may continue to enjoy the privileges of the Auxiliary, providing she continues to pay dues and fines according to her local auxiliary by-laws. She may vote, hold office and represent the Auxiliary on any occasion. At such time as she may be voted honorary membership or completes 30 years continuous membership, as provided in Section 1, she becomes an honorary member. She continues to enjoy the same privileges accorded other members.

Thelma Saunders (Mrs. John T.)
Revisions Chairman

* * *

In Memoriam

Mrs. William Todd Ferneyhough

We, the members of the Auxiliary to the Rockingham County Medical Society, wish to express our deep sense of loss in the passing of one of our most beloved members, Mrs. W. T. Ferneyhough, and to pay tribute to her memory as our dear friend and loyal co-worker.

She was quiet, sincere, unassuming and gentle in disposition, and was devoted to every interest of her church, her loved ones, and her friends. Her strong Christian character and her life of splendid loving service challenge us to follow in her footsteps, and inspire us to live better, more useful lives of devotion to our society, our church, and our Heavenly Father.

Our sympathy and love go out to her family and her many friends.

Therefore, be it resolved that in appreciation of her consecrated life of devoted service this tribute of love and respect be entered in the records of this society and that a copy be sent to the **North Carolina Medical Journal** and to the family.

Mrs. G. P. Dillard
Mrs. Carl V. Tyner
Mrs. John B. Ray

Diabetes Mellitus: Principles and Treatment. By Garfield G. Duncan, M.D., Clinical Professor of Medicine, Jefferson Medical College; Director of Medical Division, Pennsylvania Hospital, and the Benjamin Franklin Clinic, Philadelphia. 289 pages with 31 figures and 40 tables. Price, $5.75. Philadelphia and London: W. B. Saunders Company, 1951.

A sort of editorial preview of this book was given in the April issue of this journal, in a discussion of the Greensboro Academy of Medicine Symposium. Many who heard Dr. Duncan's talk on diabetes were heard to say that they expected to buy a copy of this book when it was published. They will not be disappointed, for the book is written just as he talked.

In the preface, Dr. Duncan states his two objectives in preparing this volume: "first to bring together and correlate up-to-date principles and the understanding of and in the treatment for diabetes mellitus and, second, to deal with this disease and its complications in such a manner that physicians and students may find herein a practicable and simplified outline of therapy." He has succeeded admirably in attaining his goal. The book brings up to date the accumulated knowledge of diabetes and its complications, and makes treatment simpler and more understandable than any other book this reviewer has yet seen. It can be recommended unreservedly to students and practitioners.

Handbook of Pediatric Medical Emergencies. By Adolph G. DeSanctis, M.D. and Charles Varga, M.D. 284 pages. Price, $5.00. St. Louis: The C. V. Mosby Company, 1951

This handbook may well find its place as a handy reference for the practicing pediatrician and the general practitioner who handles pediatric emergencies.

With such a diversity of topics to be considered, it is possible many of the methods of treatment advised in this text may be different from those used in other institutions. However, those methods of therapy advised are standard in many places, and a short bibliography follows each chapter so that more detailed information can be obtained. There also is a section on pediatric procedures which will be of most value to house officers.

The appendix contains a complete list of commercial products which are sources of poisons, and also a list of poisons contained in common household articles.

In general, this book should be of value to those concerned with the emergency treatment of children. It is well bound, printed on good paper, and contains adequate illustrations and tables.

Letters of Jean de Carro to Alexandre Marcet, 1794-1817. Edited with an Introduction and Notes by Henry E. Sigerist. Supplement No. 12 to the Bulletin of the History of Medicine. 78 pages. Price, $2.00. Baltimore: Johns Hopkins University Press.

These twenty-two letters are in the Henry Barton Jacobs Collection of the William H. Welch Medical Library of the Johns Hopkins University.

Jean de Carro of Geneva and, after the French Revolution, of Vienna, a friend of Edward Jenner, received a string impregnated with vaccine virus from Pearson of England, and with it introduced vaccination into continental Europe.

Alexandre Marcet, also born in Geneva, graduated in medicine, as did De Carro, from the University of Edinburgh. He became a resident of Vienna after a political upheaval in the Republic of Geneva.

De Carro took up, in addition to vaccination, the sulfur cabinet fumigation of certain skin diseases and the iodine treatment of goiter.

The first and third letters of the series are in English, the rest in French.

The first letter deals with medical student life in Edinburgh, the curriculum, the vices of the time, and so on.

The second seeks aid in procuring a tutor for the son of a prominent man.

The third deals with Marcet's escape from the politically disturbed Republic of Geneva after he had suffered imprisonment.

The fourth letter is largely personal.

The next four letters discuss vaccination, politics, and prolonged serious illness of De Carro's wife. The ninth letter tells of her death from phthisis.

The tenth letter discusses vaccination further. The next two are personal.

The thirteenth letter, a long one, deals with various scientific matters, including Marcet's proposal of De Carro for corresponding membership in the Medical Society of London. The fourteenth letter refers in detail to Jenner and his work, and to De Carro's election to membership in the Jennerian Society.

The fifteenth letter refers to Benjamin Waterhouse of Cambridge, Massachusetts, who introduced vaccination to North America.

The sixteenth letter deals with many things and inquires if Jenner had published in any medical journal a letter from "la Compagnie des Indes" (It is not clear whether this means the British East India Company or a French Company—perhaps the latter, for France had some territory in India) about 200 guineas sent by the company, apparently, to De Carro for the purchase of a piece of plate.

The seventh letter continues the discussion of vaccination.

The eighteenth describes his three sons and his daughter, especially the military service of his sons.

The nineteenth refers to medicine in London, Geneva, and Vienna, especially the treatment of "venereal chancre."

The twentieth refers to his second son, then in Odessa, and to De Carro's friend, Richard Bright.

The twenty-first discusses personal matters and Austrian hospitals.

In the last letter, a brief one that is largely personal, De Carro acknowledges his great interest in Marcet's book on bladder stone, offering to translate it into French and German. De Carro's closing farewell is "with all my heart and soul."

An appendix gives a brief discussion by De Carro of Joseph and Johan Peter Frank.

This publication is of real significance to the student of medical history, as it deals with many little known personalities and matters of prime importance in European medicine at the end of the eighteenth and beginning of the nineteenth centuries. The letters in English show De Carro to have been a master of that language but the reviewer feels fortunate to be able to read and appreciate those in French, for the best of translations cannot match the sparkle and clarity of the originals.

Functional Anatomy of the Limbs and Back. A Textbook for Students of Physical Therapy and Others Interested in the Locomotor Apparatus. By W. Henry Hollinshead, A.B., M.S., Ph.D., Head of the section on Anatomy, Mayo Clinic, Rochester; Professor of Anatomy, Mayo Foundation, University of Minnesota. 341 pages with 112 illustrations. Price, $6.00. Philadelphia and London: W. B. Saunders Company, 1951.

This book is an excellent textbook for introducing the student of physical therapy to functional anatomy. It also provides good reference material for students of physical education and nursing. It is simply written, so that even the student who has not had good courses in anatomy in nursing school or college will have little difficulty mastering the anatomical terms. The print is readable, and the diagrams are excellent and numerous. The text is brief and to the point, but at the same time gives the essential facts clearly and attractively.

Functional Anatomy of the Limbs and Back is not limited to the limbs and back only, but devotes about sixty pages to "Anatomical Terminology," "Tissues of the Body," and "Organs and Organ Systems." The author, in Section 1, under the general caption of "The Organization of the Body," gives the reader and the student groundwork for the specialized information that comprises the bulk of the book. This material, collected and condensed from various sources, is essential for the student of physical therapy; of course it as well as the material kinesiology will need to be supplemented later on with other texts, but it should make the more complicated texts easier to follow.

The sections on "The Limbs and Back" are not only valuable to the physical therapy student, but important also as a reference book for graduates in physical therapy and medicine. In these sections Dr. Hollinshead describes the bones, joints, muscles, their origins and insertions, nerve supply, blood supply, and muscle actions; and presents clear diagrams of all the major muscles of the limbs, back, neck and trunk.

Altogether, this is an excellent book for physical therapists and all others who work with patients whose locomotor apparatus has been impaired.

Symposium on Steroids In Experimental-Clinical Practice. Edited by Abraham White, M.D., University of California Medical Center. 415 pages, with 103 figures and 104 tables. Price, $7.50. Philadelphia: The Blakiston Company, 1951.

The most recent information on the use of the 11-desoxy steroids in experimental and clinical practice is contained in this book which has just been released to the medical profession.

It is a complete report of the scientific papers and discussions presented at the First Annual Steroid Conference held in Cuernavaea, Mexico, in January, 1951.

It contains twenty-two reports by sixty-two prominent hormone specialists and rheumatologists on their work in both animal and clinical studies with pregnenolone and other synthetic steroid hormones of the 11-desoxy group in arthritis, cancer, sterility caused by seminal inadequacy, tuberculosis, ulcers, high blood pressure, and other diseases. Although the reports are concerned mainly with the 11-desoxy steroids, information of value is also given with reference to cortisone and ACTH, generally for comparative purposes.

The report presented by Dr. W. Paul Holbrook of the Southwestern Clinic and Research Institute, Tucson, Arizona, on clinical trials with various 11-desoxy steroids in rheumatoid arthritis indicates the possible adjuvant use of such steroids together with subtherapeutic doses of cortisons and ACTH. This approach has the important feature of suggesting a means of avoiding the undesirable side effects of long term administration of clinically effective doses of cortisone and ACTH.

Users of pregnenolone, which has been extensively studied especially for its use in arthritis, reported that in animals, it exerts influence ranging from spermatogenic to antifibromatogenic. In clinical practice, it was reported that the compound is effective mainly in the mild or early stages of arthritis and in rheumatism conditions involving the soft tissue, such as bursitis or fibrositis.

Several chapters deal with the newer experiences in the clinical application of steroids in various forms of cancer. The work of Dr. Roy Hertz of the National Cancer Institute in Bethesda, Maryland, in cervical cancer, and the work of Dr. George C. Escher of the Memorial Center for Cancer and Allied Diseases in New York, in mammary cancer indicates that in some instances regressive changes were observed. However, they did not consider such changes to be sufficient to indicate the use of the newer compounds as therapeutic agents. The overall report of Dr. Ira T. Nathanson of the Harvard Medical School on the present day status of androgens presents an important summary of the factors involved in the search for new steroids in the treatment of neoplastic diseases.

In addition to the papers and discussions, the book contains tables which summarize the clinical studies and help the reader formulate an opinion regarding the present and future status of the 11-desoxy steroids in clinical practice. These tables give for each steroid studied, information on the type of clinical condition, the number of patients, the pharmaceutical form of preparation used, the average daily dose, the duration of the treatment, and the actual clinical responses observed.

Lilly's to Process Blood Plasma

Because stock-piling of human blood plasma for military or civilian disaster is considered an essential defense measure, Eli Lilly and Company has announced plans to establish a modern blood-processing unit. Over 2,000,000 pints of blood were processed and supplied at cost by the Lilly company during World War II. The new unit, to be set up and operated in Indianapolis for the Armed Services Medical Procurement Agency of the United States, will be completed late this year.

Whole blood collected in principal Midwestern cities by the Red Cross will be expressed to the Lilly plant in refrigerated containers. Almost immediately after the whole blood arrives, processing starts with the centrifugation of plasma from the cells. The plasma is drawn off, pooled, and irradiated with ultraviolet light. The latter step has been added since World War II and is designed to inactivate the virus responsible for hepatitis. The plasma is

BULLETIN BOARD

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CITIZENS COMMITTEE FOR THE HOOVER REPORT

Dr. Robert Collier Page, chairman of the National Doctors' Committee for Improved Federal Medical Services, recently announced the completion of an advisory committee of experts from every branch of the medical profession. They will consult with the chairman on matters of policy in the pending campaign to secure wide economies and more efficiency in the present overlapping and competing system of hospital and medical care operated by the government.

The National Doctors' Committee is an affiliate of the Citizens Committee for the Hoover Report, which is urging passage of the recommendations of the bipartisan Hoover Commission for the unification of the various governmental medical agencies under a single authority. The slogan of the Doctors Committee is "Not more government in medicine but better medicine in government."

Dr. George D. Wilson of Asheville, North Carolina, is a member of the newly formed advisory committee, which includes high-ranking men in the twenty major divisions of medicine and surgery and the allied technical skills.

PAN-PACIFIC SURGICAL ASSOCIATION

F. J. Pinkerton, president of the Pan-Pacific Surgical Association, reports that plans are well under way for the Association's Fifth Congress and advises doctors to make arrangements as soon as possible to attend this meeting.

Dates for the Honolulu congress are November 7-19, 1951. The scientific program, which will begin on November 12 and continue through November 16, will include sessions in all divisions of surgery, with papers presented by surgeons from the Pacific area countries.

The Pan-Pacific Surgical Association has been officially appointed as travel agent for those attending the congress, and it is therefore important that all hotel and travel reservations be made through the Association office, Suite 7, Young Hotel Building, Honolulu, Hawaii.

DEPARTMENT OF THE DEFENSE

The first kinephoto recording of surgery for medical training purposes has been made and demonstrated at the Army Medical Center, Washington, D. C., the Department of the Army has announced.

Kinephoto recordings—simultaneous recording of sound and picture—of an amputation and other orthopedic procedures were made by the Radio Corporation of America, of Camden, New Jersey, during a medical service course for company grade officers at the Army Medical Center.

Being considered as a method of producing medical training films for wide distribution, the kinephoto process, according to RCA engineers, offers these major advantages over the training films now used. Surgery can be shown in greater detail because of lower light level requirements; questions and answers between surgons and observing students can be recorded for distribution with the film, and greater ease of reproduction is achieved with a sharp reduction in recording noise.

Remedies for Seasickness Tested by Armed Forces

The Armed Forces haven't given up on the old bugaboo of sailor and airman alike—motion sickness.

With the cooperation of the Navy's Military Sea Transportation Service in the Atlantic, medical men from three military services have embarked on a series of controlled experiments with troops at sea. They hope to find out how to relieve the dread and familiar symptoms of seasickness—the churning stomach, the pale and perspiring brow, and the tendency toward utter despair.

Preliminary studies have been made, the Navy reveals, in an attempt to determine which of several proposed remedies works best.

The drug, dramamine, developed under Army supervision, was found in earlier tests to be 97 per cent effective in both the prevention and cure of seasickness. Later experiments by the Air Force established that Benadryl, hyoscine and Artane were as effective as dramamine in curing seasickness. None of the drugs, however, have so far been found to be both safe and effective for air sickness.

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American Medical and Hospital Associations Support Army Nurse Recruitment Goal

The American Medical Association and the American Hospital Association have endorsed the expansion goal of 3,000 additional nurses for the Army Nurse Corps, Major General Raymond W. Bliss, the Army's Surgeon General, announced today.

Dr. George F. Lull, secretary and general manager of the American Medical Association, has advised that its Board of Trustees approve the nurse recruitment program and will bring it to the attention of the medical profession through the **Journal of the American Medical Association.**

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Dr. W. Randolph Lovelace, II, Heads Armed Forces Medical Policy Council

Appointment of Dr. W. Randolph Lovelace, II, as Chairman of the Armed Forces Medical Policy Council, effective July 1, 1951, has been announced by the Secretary of Defense, General Marshall.

Dr. Lovelace, who is a member of the Council, succeeds Dr. Richard L. Meiling, whose resignation as chairman becomes effective on June 30, 1951.

Dr. Lovelace is a diplomate of the American Board of Surgery; a fellow of the American College of Surgeons, the International College of Surgeons, the Institute of Aeronautical Sciences, and the Aero Medical Association of Military Surgeons and many other medical associations.

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Civilian Consultants Aid Army Medical Program

Three prominent civilian physicians have accepted appointments to committees of the Society of United States Medical Consultants in World War II, which will assist in providing medical consultation of the highest order to the Army Medical Service, both in the United States and overseas. The committees were appointed at a meeting of the society's advisory board in the office of Major General R. W. Bliss, Army Surgeon General, recently.

Heading the committee, which will concentrate on advising on assignment of consultants for Army hospitals in the United States, is Dr. Joseph M. Hayman, Jr., specialist in internal medicine, of Cleveland, Ohio. The overseas committee chairman is Dr. Alfred R. Shands, orthopedic surgeon of Wilmington, Delaware. The only other doctor so far appointed is Dr. John B. Flick, of Philadelphia,